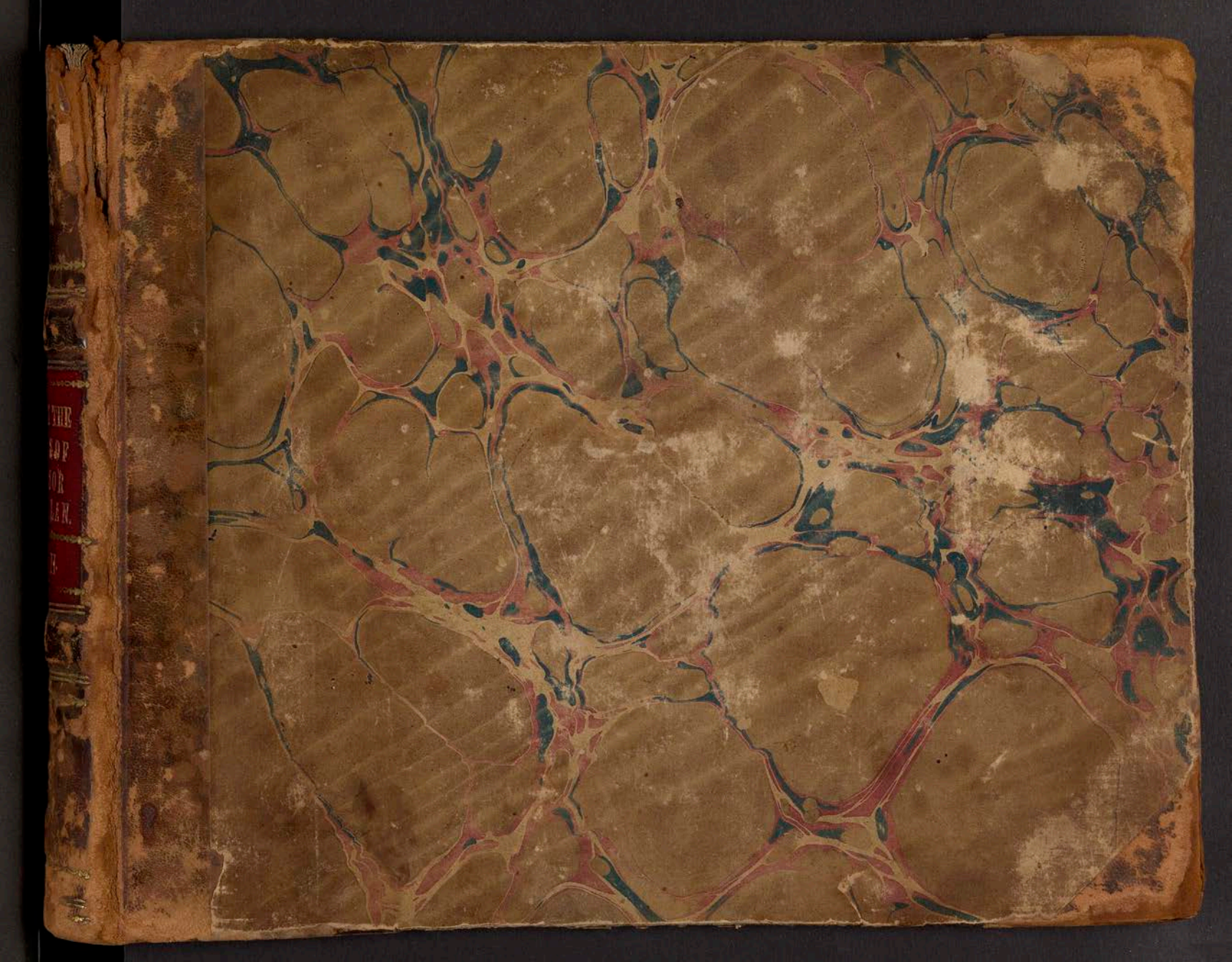


typo in Surgery.

I have opened several cysts in this way and found hair and the like protrude, showing these to be cases of extra uterine fœtation. Sometimes ulceration takes place and we have an opening with these protruding through it. In these cases the opening may be enlarged and then pieces of bone, cartilage &c may be removed.

Lecture 55th January 31st 1843.

Affections of the pelvic Viscera and external appendages.

Testicles. Fibro cartilagious tumours of— Case 1. In a patient whom I attended there was a true scirrhous cancer of the testicle; the whole being of a fibro cartilaginous nature. True scirrhous cancer of the testicle is very rare. I have only seen this one case of it.

The tumour was solid, firm, of a metalic hardness and weight; there was a lividity and contraction of the scrotum, the tumour being about the size of a large egg; there was induration of the chord upto high as the abdominal ring; there was a defect of the general health, the patient exhibiting what the old surgeons called the dry temperament; and there was lancinating pain. Almost

every hour the patient would experience these pains. They shot up to the loins and transversely; indeed to every part not following the definite course of any nerve.

Many Surgeons condemned the operation on account of the patients general health. Upon examining him I found that by flexing the abdomen, I could pull the enlarged portion of the cord without the ring. I operated, removing the testicle. I promised him nothing but a reprieve, and he recovered. But in 2 years a tumour returned in the hollow of the thigh, which he attributed to hard exercise during harvest. This tumour existed in the part occupied by enteral hernia. and of course out of the track of the lymphatic vessels which run from the testicle. If we remove a cancerous lip, in by far the majority of cases, the return will be seen in the glands of the throat; if a cancerous breast in the axillary glands. In these places the disease can be taken by absorption; but this returned, not in the course of the lymphatics of the testicle, but in the hollow of the thigh, occupying the foramen in the crural fascia.

I operated, removed this) and found it a medullary tumour. A process of it ran up under Poupart's ligament, which produced so much tension and pain, that I

was unable to stand erect. While removing the tumour I removed the saphena vein just as it entered the great femoral, which, according to surgeons, endangered the admission of air into it, but which I think is merely a scare crow in surgery. The only thing which is to be dreaded is inflamation of the vein, as these are very liable to a diffuse or erysipelatous inflamation, which extends along them, and sometimes produces disastrous consequences. In the arteries, from a ligature, we have a separation of the internal coats and a union follows. There is no danger in these of a diffuse inflamation or of ulceration. But from a ligature on a vein the fibres are bruised and not separated as in the artery. In these the coats cannot be divided by a ligature. I knew this and closed the vein by Assalini's forceps, and afterwards put a ligature around only moderately tight, so as to prevent hemorrhage and inflamation. This wound granulated and healed, but now there is another tumour, in the loins behind the peritoneum.

In this testicle (~~exilited~~) there are no tubuli seminiferi, and the whole epididymus is involved. The whole substance of the testicle is changed. There are white lines running through it and it cuts like cartilage.

4

If a lesion has had the true Hunterian Chancre followed by one thereof, and then the enlargement of the testicle, we must not amputate it. We must keep up salivation for a long time, apply a mercurial plaster over the testicle, and use the antisyphilitic treatment both topically & generally. By this we may cure large sarcoceles; but if it cannot be cured, and is of large size and inconvenient and distressing to the patient we are justified in amputating.

Gonorrhea produces an inflamation in the urethra, and by sympath the testes become more or less enlarged, and sometimes with it there is an effusion in the tunica vaginalis. When this swelling goes down we are apt to have a return to the urethra. When this is the case, we must retain the urethra, for if we do not we may fail in the cure of the enlargement. For simple sarcocele, however large, the operation is not often required.

May are afraid to amputate if the chord is affected, in malignant diseases of the testicle, but if you can pull down the diseased portion of the chord, you may operate. But where the glands are enlarged and out of reach we must not operate. Where these are not much enlarged, we may operate hoping they are sympathetically affected.

I have seen true scirrhous cancer, medullary fungus and scrofula in one patient. These all arise from unsound nutrition producing unsound blood. The late researches of Liebig tend to establish this point.

Medullary tumour of the testicle. In this there is a soft dough like, and apparently a fluctuating tumour. It feels like a lump of dough in a gum elastic bag. There is no sense of yielding but not of fluctuation.

In the case of the patient whose testicle I show you, it had ulcerated from the irritation produced by a puncture. I removed this and found the cord was not sound. The disease returned in about 18 months both in the glands of the groin, as almost all the malignant tumours of the organ do. +

Diseases of the urethra, stricture or gonorrhea, or from contusion or gravel in the urethra, or from any thing what produces inflamation in the urethra we may have produced a sympathetic ~~enlargement of the testicle~~. I have had a number of cases of patients who complained of pain, and who had enlargements of the epididymus, which I have relieved by proper treatment

It has been a question in my mind if these are not the result of Syphilis.

In these cases we give mercurial alteratives, keep up gentle salivation for a few weeks, sarsaparilla, regulate the diet, give laxatives, apply leeches, and use the warm bath. After we have gone through several of these courses and the patient is not benefited, if it still remain an inconvenience and source of distress to him, if he desire it, we may remove it.

We are very liable to be deceived in diseases of the testicle. If it be a hard heavy metalic tumour, and feels like knobs, and be attended with lancinating pains, we may suspect that the disease is true scirrho-cancer. If soft and yielding, like dough in a gum elastic bag, we may suspect the disease is medullary fungus.

There are very liable to return after the testicle is removed; more so in my opinion when in the testicle, than in any other part of the body.

Medullary fungus of the cavity of the bladder. I had the case of a woman who had been twice pregnant and delivered of children. She suffered from a sense

of tightness, pain or weight behind the symphisis of the pubis. After her second confinement she had a flooding which was suspected to come from the uterus. Upon our attention being called to it by the nurse we found it to come from the bladder. I introduced a catheter and drew off a mixture of blood and urine, and found a tumour in the bladder. By introducing the catheter several times a day I allowed it contract, when I found it to be a fungus tumour. Nothing in this case was of any service only such as would correct the general health. I gave diuretics, the erigeron Philadelphicum is the best in such cases, laxatives, enjoined rest and regulated the diet. Under this treatment, and by introducing the forceps to withdraw obstructions, this patients life was protracted for a few weeks.

I had another patient, a boy, in whom, from the symptoms, and from the violent fits of stone which he had, tumbling and rolling over the floor, I was sure a calculus existed. I could not perceive the stone by sounding, but being sure of its existence I performed the high operation. I found a stone and found it lodged in a fungus in the lower part of the bladder. This

patient died. It was one of the 2 cases which terminated fatally in my hands. in which I performed the high operations.

(These cases are incurable. but they may be relieved by proper treatment.)

Lecture 5th February 1st. 1843

Hydrocele. A compound of hydrocele and sarcocele (is) is a common thing. A simple hydrocele, a mere dropsical distension of the tunica vaginalis testis, without disease of the testicle is very rare. This collection of water is the result of a general inflamation; not of the serous membrane alone but of the gland which it covers. In ascites we have in many cases, first an inflamation of the liver which extends to the peritoneum covering it, and from inflamation of this membrane we have an effusion. If have this effusion in the tunica vaginalis, inflamation must exist in all cases. The testicle to produce this dropsy must therefore become inflamed, which it may either by a bruise or sympathetically from irritation in the urethra. This inflamation always produces a preceding enlargement of the testicle, which is accompanied with the dropsy. When

the hydrocele is large there is always an enlargement of the testicle.

Before performing the operation for the radical cure of hydrocele, after drawing off the water, we ascertain the state of the testicle. If this be found enlarged and nodulated, we remove this condition of the testicle before we cure the hydrocele. My plan is always to tap where we can avoid injuring the testicle. Sometimes the water collects below and pushes the testicle up; at other times it collects alone and pushes the testicle down. It does not require the tactus eruditus to tell where the testicle lies. Where the testicle lies there will be a hardness to the feeling, and the fluctuation will be deficient. If we press upon the part under which the testicle lies, the patient will experience pain and will flinch. The testicle ought to be at the back part of the scrotum, and if I find it there, I tap at the front and lower part. If I find it in front I tap at the back and lower part of the scrotum.

I often draw off the water with a lancet and Canula. There is no danger of the water being effused in the cellular texture of the scrotum if we make a free incision. If this be made small you may not be

able to get in the canula and then it may be effused, which will still give some relief to the patient. Or you may, for the purpose of drawing it off use the canula and trocar.

When the water has been drawn off and we find an enlargement of the testicle exist we cure this. Correct the general health by laxatives &c, apply a mercurial plaster over the scrotum and use leeches. You may use iodine for a few days to promote absorption. If by this we effect no change the radical operation is required. When not overcome by this, or by relieving the urethra when disease exist in it, by which the testicle might be sympathetically affected, we frequently perform the radical cure.

It is very common now to use injections into the tunica vaginalis of wine and water, of iodine or of galls, which produce inflamation and a union of the parts. These injections are very uncertain means of cure, 1st because they create a degree of inflamation in the testicle which we cannot regulate. In one will have a mild degree of inflamation with little constitutional disturbance. Other will have a terrible degree of inflamation with enlarge-

ment of the testicle, and perhaps suppuration. Some will have a low degree of inflamation at first and afterwards violent inflimation; others will have it violent at first and afterwards low. 2-4. The water is apt to be speedily secreted and will therefore keep the parts seperate prevening a union. I have abandoned this operation for the radical cure long ago.

There are 2 other operations which I resort to. In one I make an incision into the tunica vaginalis testis and inch or 2 inches in length, and introduce a tent. This I allow to remain 6 or 8 hours, then withdraw it and apply a poultice. By this I allow the fluids to percolate out and the surfaces to come in contact and adhere. Dr. Hunter introduced dough into the cavity and allowed it to remain there until suppuration was produced. Where the inflamation has commenced, if we do not withdraw the tent it will burn too high, the testis will enlarge and perhaps suppuration will follow.

In the other operation I cut up through the whole anterior wall of the sac. Sometimes do this by a bistoury introduced below and carried up, and sometimes I make a puncture below and cut up with a scissors. I

then seize the tunica vaginalis and cut away all the redundant portion. I generally pull it out through the opening and cut it away with a scissors. When the testicle is large I frequently cut away all the exterior portion. I then put in a few needles, lay over the part a piece of lint spread with cerate and tie it up. I have never seen this fail. The sac is commonly obliterated and the disease does not return. When this has been done frequently the scrocele has gone down.

Oh when my patients are afraid of a cut, do I use the tent. Then I generally carry in a curved canula with a thread in it, force it out through some part of the scrotum again, permit the thread to remain and withdraw the canula.

Enlargement of the Nymphæ. This sometimes produces an obstruction to the performance of the functions of the sexes. I have removed this when very much enlarged. These parts are very vascular and the operation is attended with considerable hemorrhage. In one case in which I removed the enlargement, the lady afterwards became pregnant and bore children. Although she had been married for 3 years before she had never became

pregnant.

Impediments to the discharge of Urine. The first forms of retention of urine, and that which is the least painful, is one of the most deceitful forms which we meet with. This occurs in disease of the spine attended with a paralysis of the lower extremities. In all enfeebled, weak and debilitated states of the system, as in typhus and other fevers, and from any cause producing these states, we are liable to have an inability to pass the urine. The bladder becomes distended and rises in the abdomen, until by the pressure of the diaphragm and walls of the abdomen, there (takes place) is a dribbling of the urine. It obstructs the action of the viscera and produces a torpor of the mind. By patients passing as much as they desire we are apt to be deceived and let it pass over; while at the same time the bladder is over distended. From this over distention the bladder is liable to ulcerate, when the patient will pass pus with the urine, which may be mistaken for a catarrh. From this to we may have the phosphatic diathesis, the chalky deposite and ammoniacal odour. Whenever the muco purulent discharge begins, then there is great danger of ulceration through the coats of the bladder

+ or turpentine. (The conditions produced by these require the same treatment as if the parts were inflamed.)

ad from this we may have an infiltration of urine which will speedily carry off the patient.

Whenever you see a weak and low state of the system always examine the bladder. Pass 1 or 2 fingers into the rectum and tap over the regio pubis, and if it be distended there will be fluctuation. If it be found distended introduce a catheter and draw it off. This should be introduced 3 or 4 times a day to favour the contraction of the bladder by preventing it from being distended. In these cases the only obstruction to the passage of the catheter is found in the follicles of the urethra. We may be foiled here in introducing a small instrument which hooks in these, when we can introduce a large blunt silver catheter.

It may happen in cases of fevers or from the use of Cantharides[x] we may have another difficulty superadded. When long distended the patient may be afflicted with a painful sensation upon passing the urine, giving rise to what is called <u>ischuria</u>. It is accompanied by spasm, the muscles drawing up the urethra and closing it, and there is inflamatory engorgement.

If the patient be affected with this complication we must lay aside the use of the instrument and

† Give oil as a cathartic, and mucilaginous injections as drastic ones may increase the irritation and spasm. When the bowels have been opened and excitement overcome, if we cannot introduce the catheter throw in an anodyne injection, and let it be large in quantity. I throw up the rectum a tablespoonful or 2 of laudanum and sometimes as much as a pint. By this in 99 out of 100 cases we will succeed.

relieve this state. Place the patient in a warm bath or set him on a stool, cover him over and steam him. This will relax the parts, overcome the spasm and inflamation. We can then pass the instrument.

Where there is excessive pain, from which the patient is unable to sit still, and tosses about the room, with a tense and corded pulse, a dry tongue and hot and dry skin, we must bleed to full fainting. When he recovers we should raise him up and let him faint again. We should throw up a flaxseed injection and place the patient in a warm bath.[x] By this the spasm will subside and 10 to 1 the urine will pass off without the use of the catheter.

Sometimes we fail after having exausted the patient, even after we have given Antimony, used leeches and the warm bath, and opened the bowels. The spasm still continues and the bladder continues increasing in size. In these extreme cases, attended with pain and high excitement, after we have failed with these remedies, and the symptoms continue increasing, the best remedy is the tobacco injection, used under the same circumstances mentioned for its use in strangulated hernia. If we use

it too early the patient will be injured by it, and if too late when he is in a low & feeble state, the patient will die from it. But when the pain is extreme and insupportable it will have no bad effects. It is a safe remedy when the nervous system has been harassed for a long time by any disease.

In all cases where inflamation and spasm of the urethra exist with overdistension, treat by antiphlogistics-bleeding &c as the symptoms require, and so the operation will not be required. Most physicians neglect this and resort to a catheter at once (making a sweep by the greater and then by the lesser curve of it) and make in their efforts to introduce it, a false passage and increase the inflamation. When these are overcome the instrument may be introduced without danger of making a false passage.

Lecture 57th February 2nd 1843.

We often have functional diseases producing obstruction to the passage of the urine. One of these diseases is enlargement of the Prostate Gland, which is frequently seen in old men. In women there is no prostate, but there is

often in them a great indentation which prevents the passage of the urine. In males after the age of 50 or 55 it is a very common thing.

Frequently we have as the cause of obstruction in the third lobe of the prostrate - the lobuli Morgagni - and sometimes the projection of mucous membrane at the neck of the bladder called the palate of the bladder. From increased growth is a cause of obstruction.

We have there 3 forms of disease producing obstruction, the first of which - enlargement of the prostate - can be detected protruding into the rectum. When large it is an obstruction to the passage of the feces. There pass off flat and with great difficulty. This is what calls our first attention to the disease. The patient finds an obstruction to the passage of the feces, straining at stool and a flat state of the feces. If we now examine, although his attention has not before been directed to it, we will find the urine is passed with some difficulty. After a while if the disease continues they are liable to a retention of urine, and strangury supervenes. From stimulating potations, and high living they are liable to this.

When this is the condition of things the bladder is re-

ry apt to become overdistended before we can overcome the enlargement. When this is the case the length of the urethra is very much increased; the membranous portion is very much elongated. On this account the common length of the catheter is not sufficient to enter the bladder. And the course of the canal is altered. I have frequently seen physicians failed at introducing the catheter, and the patient screaming in their hands, when, by bending the catheter, I have introduced it with ease and drawn off the urine. The first thing I look to is the length of the instrument. Many fail from having too short an instrument.

In some patients we have an additional impediment from a lateral enlargement of the prostates, which distorts the urethra to one side. The urethra is forced to the side opposite to the enlarged one. In these cases the only way is to turn the instrument to the side opposite the enlargement.

If the third lobe is enlarged - the lobule Morgagni - by a great curve in the instrument we may do something, but with this we frequently fail. Then by introducing a flexible catheter carrying it as far as it will go, and withdrawing the stilette 1 or 2 inches, it will enable it to

head and glide over the obstruction into the bladder.

Here is another great improvement, which is, not only to pull back the stilette, but to rotate, when back, the catheter upon it, which will twist and wind around all the prominent surfaces.

By these means, if we have previously overcome spasm and inflamation, we can frequently pass in the catheter.

When introduced we must not leave in the catheter too long, as most surgeons prefer. If only for a few hours no harm will be done; but if for a day or a few days, inspissation will follow, which will perhaps go on to produce the phosphatic diathesis, and finally ulcerate and destroy the bladder. Only leave it in for the first few hours, then withdraw and introduce again a few times a day.

Sometimes we have enlargement of the ante-prostate Gland or Cowpers' glands, which lie behind the bulb of the urethra and before the prostate. They are behind the lamina of the triangular ligament or between some of the fibres. These glands — sometimes they are not found, sometimes only one of them are not larger than a pea or a bean. These are liable from changes of temperature, contusion, or from derangement

of the general health to inflamation and suppuration. When inflamed and enlarged, as they sometimes are, reaching the size of a pullets egg, they may be felt like a hard lump. When enlarged and allowed to go on, they finally suppurate and ulcerate through the integument, producing a fistula. This is one of the most common causes of fistula. The first symptom of this enlargement is suppression of urine, whether it be complicated with other disease or not.

The strictest antiphlogistic treatment is required to overcome this. Leaches will be necessary and afterwards the use of emolient poultices, which I prefer using, moistened with lead water.

If by these means we cannot overcome it, and pulsation and other symptoms of suppuration come on, I prefer making a free incision into it. Always when you have pain in the perineum or urethra, and difficulty of micturition suspect this disease and attend to it in time.

Whenever you have suppuration in the ante prostrato, always put in a large catheter to prevent fistula until the part heals. The moment I discover urinary infiltration, I lay open the urethra and introduce a catheter until the parts heal.

Stricture of the Urethra. Of these we have a great variety. (As a general rule we may divide them into a few).

Spasmodic. This varies in different states of the atmosphere; In warm weather the urine comes freely and in cold weather it does not. If the patient be free from fever and chill it comes freely but if the skin be chilled, putting on the appearance called cutis anserina, or if the general health be deranged, the urine will pass in a small, broken and twisted stream. ~~Sometimes~~ sometimes it is easy to pass in the Catheter, at other times we can only pass it in part of the way.

We must overcome this spasm and then introduce into the urethra, a large instrument to produce distension. We then give something which will alleviate the irritability of the parts. The best remedy for this is the Lunar Caustic. If we spread this over the surface we deaden the irritability. It may be done in several ways. Some surgeons prefer injecting into the urethra a solution of ¼ or even 1 grain. I put in a bougie which is smeared all over the surface with the Caustic, and oiled on the point, and run it up and down to smear the whole surface of the urethra. It

produces a smarting which subsides in a few hours.

Here is a better instrument which is made of slippery elm. We cut a strip of this and scrape it round and make a conical point. We dip this in warm water until a mucus comes out and covers it over like a jelly. We may then smear the caustic over this and run it up and down. This should be done every 3 or 4 days, and the large bougie introduced occasionally.

When we have a case of stricture, (we have it (patient with) derangement of the general health. By friction with the flesh brush a salt towel, out door exercise, by regulating the diet and correcting the secretions, you can do more than by the use of local remedies.

Thread like Strictures. Sometimes this is like packthread encircling the urethra (some part), and sometimes it is like a thread thrown across the urethra, lymph being thrown out from inflamation and becoming organized. Sometimes is is crescentic or like a bow projecting from one side of the urethra.

This is readily overcomes When I find only a small obstruction that is not of a grisly nature, I break it down at once I do this with a silver Catheter which sheds

only a few drops of blood and passes over the stricture part when to the patients delight the urine flows through it freely. This operation requires experience in the use of the instrument (and I would not recommend you perform it.)

To ascertain the kind of stricture we prefer the wax bougie. This may be made of linen, which should be scraped to remove all starchy matter and then dipped in melted beeswax. For large size bougies machine is the best. By this the pores are all filled with the wax. A strip is then cut off the size required, and rolled up when it is again dipped in the wax. This may be made soft by dipping it in warm water, after which we grease it with goose grease or lard, and then by introducing it we are able to sound the stricture. When we get to the stricture the bougie perhaps turns and bends back like a pig's tail, thus we know the state of the stricture. Perhaps we have it pass and marked on the one side shows the form of the Crescentic. If a string be thrown across the urethra we have the bougie marked on the end.

If the bougie does not enter the stricture it may be bent back and the end come out through the external orifice. Having ascertained the shape and size we can

tell if we are to use more potent means than the use of the Catheter. I have in these cases overcome them by by dilatation waiting the action of the lymphatics.

If it does not yield we can arm the wax bougie, by boring a hole in the end of it, with lunar caustic inserting a piece about the size of a grain of wheat. This should be sewn down to the same length it was before, then withdrawn and fused down, and back again. We do not want to burn the part by the caustic. It deadens the part and creates slight irritation and increases the action of the lymphatics which absorb the projection.

The use of cutting instruments is never necessary to overcome stricture, in my opinion.

Lecture 58th. February 3rd 1843.

Permanent Stricture. This is one form of stricture in which we meet with difficulty. In this a large portion of the urethra, an inch, and sometimes the greater part of whole Canal is obstructed, the result of previous inflamation. When this arises from stimulating injections, or the inflamation of a gonorrhea we may hope to effect a cure by antiphlogistics, promoting absorption of the lymph.

If we reduce all inflamatory excitement by general and local depletion, by low diet, mucilaginous drinks and mercurial alteratives carried to ptyalism we may sometimes produce absorption. Instead of depending on instruments, we should use general remedies, which are the best. We should use warm bathing, apply a camphorated mercurial plaster over the part and put the patient on a mercurial course: indeed we should try every means to overcome it. By these means the absorption may be brought about, when the urethra will become flexible and extensible, and then we may overcome it by bougies.

When an internal ulcer has healed and left a hard cicatrix, or a fistula has been cured and stricture follows, we cannot cure it. We must then only mitigate the symptoms by low diet, leeches rest &c. We should introduce bougies and learn the patient how to do it, as it must be done for the rest of his life. to prevent closure and from it an over distension of the bladder.

I sometimes introduce an instrument into the urethra and cut, by drawing it, through the stricture

parts of the urethra the diseased portion leaving the integuments sound, and then allow it to heal. If this does not succeed I have sometimes cut through the cicatricial parts into the urethra. But by these operations I have in every case only given temporary relief. I believe that the cells of spongiosum urethræ have undergone a change and the disease cannot be cured. If left allowed to go on, obstruction will be the result, the bladder will become overdistended and will ulcerate.

I have had more distress from seeing bad treatment of these diseases from other practitioners, than from any other diseases we meet with. You will never have this state if you overcome, in the first place the spasm and irritation of these parts. I have never had occasion to tap the bladder from disease of this kind.

In the gristly stricture which we sometimes meet with in old persons, it may become necessary to tap the bladder. In one patient to whom I was called in, and whom I found in a low and comatose state I at once tapped the bladder. I tapped it from above the pubis. I made an incision (about

above the pubis and introduced into the bladder a curved trocar made for this purpose. I drew off the urine and the patient directly recovered from his comatose state, and finally got well. He wore an instrument through the opening made into the bladder through which he discharged the urine, which he was enabled to do in plano vino, and then retain it by introducing a stopper into the end of the instrument. He wore this instrument for 5 or 6 years when he died of bilious fever.

The operation which I prefer to relieve the bladder, is that in which we operate above the pubis. Yet I perhaps prefer because there has always been disease of the prostate or other organs, preventing the operation through the rectum. If disease in these parts exist we cannot operate from the rectum in many cases, for we can only cut into the bladder between the vesicale seminales. Here is danger of wounding the peritoneum. If you feel from the rectum the bladder full and fluctuating you may tap from the rectum. I have never had a case requiring it from the rectum.

We have a great many complications of this disease of the urethra, a case of which I will give you.

Case. A man, 2 or 3 years before the time we were called to see him, swallowed the stone of a date, which he frequently said he felt in his right groin. After 2 years had expired he perceived a swelling in the groin for which he was treated by leeches over the part, low diet, rest and by a blister. From the blister thereupon was produced. I was called in and introduced the Catheter as far, I thought, as the prostrate, which upon falling in the rectum I felt enlarged. I finally passed in the Cath. and drew off only a few teaspoonfuls of urine. Next day I called in Dr Physick who introduced the catheter and was not able to bring away more than a few teaspoonfulls. The Doctor now thrust in the instrument suddenly and with some force, when the patient exclaimed – something had broke. Being unable to draw off urine, and perceiving a fulness and fluctuation I tapped the patient from above the pubis, and to my astonishment found a large quantity of pus come out. The patient died and I found a circumscribed abscess in the abdomen and all the parts around agglutinated to geth-

phthesis

× When the patient is liable to ~~phthisis~~ or apoplexy it is the rule to leave the small fistula alone as regards an operation, and to treat with constitutes to keep up a suppuration. Generally when urged to operate, if you enjoin out door exercise, and take care to keep up another discharge, you can safely operate. If the communicate with the rectum, and the feces keep up irritation I endeavor to cure them. I then put a caustic issue in the knees, give locomotives and urge out door exercise.

an Dr Physick had torn up a coat of the ureter, and the urine became extravasated between the coats of the bladder.

Diseases of the rectum. - Abscesses & Fistulae. Fistulas commonly result from ulceration of a hemorrhoidal vein. There is a small opening somewhere around the anus, which discharges and weeps a little occasionally and gives but little trouble. It does not communicate with the rectum. By, tinctures and other applications we can frequently affect a cure.

After a while these fistulae get indurated and grisly walls. The use of probes or caustics generally fail in curing this. The patient being desirous of being cured we operate for this purpose.

Introduce the fore finger into the rectum and a blunt point bistoury into the fistulae. Carry the instrument through the fistula to the finger in the rectum and then cut through the parts of the sphincter muscle between the two.

Fistulas which result from suppuration high up in the cavity of the pelvis are more troublesome.

Needles, pins, pieces of wood and the like are sometimes swallowed and stick in the rectum. These create inflamation and finally suppuration. At the lower part of the pelvis we then have an abscess formed which is deep. Sometimes these come from plethora, gouty diathesis, or from high eating and drinking, or they may form from a general deprivation of the constitution. The fever is high and the local irritation intense. Sometimes this extends to the bladder which from it may become engorged. In all cases the bowels are obstructed. The abdomen becomes tense and full, and the rectum becomes distended, painful and hard. I have punctured these abscesses and in one case I left out 2 grants of the most fetid matter I ever saw. At sometimes when first cut, spirts to opposite end of the room. It is a peculiarity of these fistulæ and abscesses, that they contain the most fœtid matter of any abscesses in the body. It seems that the fæces perculate through the rectum or are absorbed by the matter. Upon opening them I have frequently supposed they communicated with the bowel, when they had not. More commonly they do communicate with the rectum

* The ischio-rectal abscesses should always be opened as soon as throbbing and other symptoms of suppuration are shown. Do not wait for distinct fluctuation.

in which case the feces pass through the opening in the bowel and mix with the matter in the abscess. It then irritates the walls of the abscess.*

Having made a free incision and applied fomentations to the part, I am content to let these be. If the matter continues to come out, and the feces come out with it, I wait until it contracts and becomes fistulous. I then sound it with the finger which I introduce into the rectum, pass a bistoury through the fistulous opening and draw it out, severing the parts between. I then leave the wound open occasionally introducing a piece of linen.

If the sphincter ani is not open, I cut it open and let the contents of the bowels out.

If the ~~fistula~~ fistula communicates with the bowels deeper than we can reach with instruments, then the rule is to abandon the cutting operation. We then introduce a piece of ebony wood called the gorget, which I [redacted] was claimed the invention, but which has since been made of horn and claimed as an invention in England. This is made /see the drawing/ about 8 inches in length having a short handle, and concave on

x. I prefer the cutting operation as it is not necessary to dissect all the space between the rectum and fistulae. If we leave a inch of space or more it may do harm, but if only ½ is cut it will do no harm. The only thing required is the division of the fibres of the Sphincter Ani.

one side, convex on the other and rounded at the edges. It has a number of holes in it which are run in obliquely. This is thrust up into the rectum, and pass a wire through the fistulous opening in the direction upwards which the probe has shown the fistula goes. The wire is passed through the fistulae into the rectum and made to enter one of the holes in the gorget which it easily does. We then draw the end of the wire in the gorget out at the anus. We then twist and turn it and in a few days it will ulcerate out.×

If the fistula is wide, being far from the anus, there is danger of hemorrhage from cutting through. I then cut down only near to the sphincter in 1 day and on the next I cut through. By this we have but little hemorrhage which is easily controlled. =

Treatment of Enlargement of the Prostrate. Very little can be done to cure disease of the prostrate in old men. Sometimes nature does more for it than any means we employ. I have seen them go down in cases of suppuration & a discharge of matter. It is possible if the enlargement arise from inflamation, by bleeding, leeching, laxatives

and low diet we may overcome it. You may put the patient on alterative courses of mercury for a few weeks. By proper treatment to palliate the symptoms, we may at all events protract the patients life for a few months or even years. We must look to the idiosyncrasy of the patient. Some get relief, after they have tried other means for years, from the uva ursi. (Some ~~get relief from the Surgeon Philadelphia~~). Some in which the urine is loaded with lithic acid, must use alkalies. Some, who are troubled with a diarrhea prefer lime water. Some say they obtain more relief from a few drops of Harlem Oil then from any thing else. Some find benefit from honey. I have received letters from a number of my patients who have stated they had found a remedy for the disease after having used mine in vain. They may take of honey 2 or 3 teaspoons full in their common drink 3 or 4 times a day. Always allow these patients to have what they find is best for them.

In all cases of disease of the prostate attend to the rectum which is almost always diseased. If there be hemorrhoids cut away the prominent portions. If there be a stricture use bougies to overcome

it. If there be hardened faces in the rectum, have it washed out with warm or Salt water.

Lecture 39th February 4th 1813.

Hemorrhoids. These are frequently associated with fistula, and frequently give rise to the blind fistula which is not deep and do not communicate with the rectum.

External Piles. Of these there are 2 species which are very diffrent. One is a warty, grissly thickening of the skin at the margin of the anus, sometimes complicated with a puckering, the lines running from the anus as a centre, to the circumference of a circle.

If made by mild applications the patient will be relieved of these without an operation. If long they ought to be excised. If several exist one may be removed at a time, waiting until the next day to remove the others. They ought to be excised by means of a bistoury or scissors, and then the parts washed and annointed.

In the other kind there is a vascular, livid looking, soft tumour, which is a varicose enlargement of the hemorrhoidal veins.

If early there may frequently be cured by washing with cold water and soap, or by the application of Goulards ointment or the Gall ointment, which is a very astringent application, mixed with opium in powder. A great variety of other remedies have been employed among which is the ointment of poke, which is frequently serviceable.

When irritable, itchy and inflamed a mild emollient may be used. Linseed oil may be smeared over the part externally and introduced into the rectum. Any mild application may be used with laxatives internally and laxative food, as boiled beans and prunes for desert, or bran bread, or mush and molasses. By these means, with mild and cooling applications or astringents when inflamed we may frequently cure them.

Occasionly they become in dirty and filthy persons, a black lined tumour, sometimes the size of a hens egg. We then lay it open and let out a large quantity of black grumous blood. We may have hemorrhage from the vessels, but by rest, astringents - as galls - and a little lint we can restrain

it. If any prominent surfaces still remain they may be cut off and touched with nitrate of silver.

Internal Hemorrhoids. Of these we have, as of the external 2 kinds. One is a firmly indurated tumour, and the other consists of a relaxation of the internal membrane. They begin by a relaxation of the internal membrane, and when the patient has straining or bearing down at stool, this protrudes.

If we excise these we are apt to have internal hemorrhage when the part is returned. I prefer the application of a ligature. If not large I pass a needle through the protruded part, with a thread in it. I then remove the needle and tie one thread over 1 side of the tumour and the other around the other side.

If large, after getting it out as far as I can by having the patient strain as at stool, I pass a gum curved tenaculum through it, and then a double ligature under the tenaculum. I then tie one end of the ligature under the end of the tenaculum as I tie it around an artery, then tie the

or under the handle of the instrument. Then cut off the 2 ends of each ligature, remove the tenaculum but the gut recede. This has the advantage of covering and preventing subsequent protrusions. They will slough off in a few days, and the part will cicatrize. By allowing only a low and cooling diet no irritation will follow. There is no difficulty in performing this operation, there is very little pain, and it is always successful.

Sometimes these fall out and are accustomed to be strangulated. Inflamation occurs lymph is thrown out. They become grisly and reach perhaps the size of a hazelnut, but are not vascular generally.

I am generally able to dissect these out with little hemorrhage.

When vascular we remove by the ligature; when grisly and non vascular we remove them by the knife.

When we cut these away we sometimes have hemorrhage, but the idea that this cannot be stopped without the application of hot irons is absurd. I assure

you there is no difficulty when these are low down. You can exert the rectum by passing one finger into it and pressing with the thumb on the perineum. If arteries or veins are opened, and the blood flows from them, you can prevent it by Assalini's spring forceps and pass a ligature around them.

From long irritation in the rectum, with violent straining, the sigmoid flexure of the colon is apt to be protruded. It falls down and fills the cavity of the rectum which is distended, and finally it protrudes externally. The way to distinguish this is to pass a finger into the rectum, while the patient strains as at stool, and you will find a tumour hanging down and dangling in the rectum. It consists in an inversion of the bowel, which may become strangulated and if neglected we have a stricture.

The way to cure this is to introduce a rectum bougie, curved nearly into a semicircle, so as to fit the concavity of the sacrum. You push this up and not only reinvert, but you replace the bowel. The moment this is done, the symptoms of fainting and pain subside. Then throw up into the rectum cold water.

I prefer the bougies of metal. Those of gum do not irritate the parts but the metalic both the irritation and cool the parts.

In some cases where the bowel protrudes externally a gristly induration forms and then it will not return by these bougies. I then make a roll of muslin as those which are made to wound stricture, grease it and pass it up. You can pass these high up into the intestines. Sometimes I have passed them so high as to feel them at the umbilicus.

Aneurism. (In one kind of aneurism two internal coats of the vessel are broken, while the external is dilated into a large sac.) True aneurism is considered by surgeons now, as constituted by the external wall of the vessel, which is strong and voluminous. The internal coats cannot dilate to a large size without being ruptured. It is possible you may have a dilatation of all the coats of the vessel, but it is not of large size, and this diseased dilatation ought not to be considered

an aneurism, as it may exist in persons who may have no inconvenience from it. Only when the 2 internal coats are torn, and the external coat remains, which is the cellular and thickened by irritation, ought we to call it true aneurism.

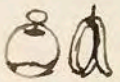
In some cases – in persons of sound constitutions, a puncture is made in an artery through all the coats, and the surrounding cellular texture becomes condensed into a capsule. These cases are very rare and are only seen in cases of wounds. Not all the coats of the vessel can be wounded, and the external cellular tissue be the aneurismal sac, I have proved in my cases. The sac first contains only liquid blood, and yields under pressure, and has the thrilling or whirling sound. It can hardly be mistaken from this fact. We may have a tumour situated over an artery which moves with its pulsations. but if you pull it from side to side and pull it up from the artery this beating will cease. Unfortunately after a while the blood undergoes coagulation, then we have it beginning to be converted into a hard gristly tumour. When we have this, if we press on the tumour carefully towards

the artery it will not disappear. At first while the sac contains only liquid blood we can press it out, and upon removing the pressure it will instantly return. The coagulation of the blood begins to take place in a very few days. We have concentric lamina formed very much like the lamina of the middle coat of the artery by the coagulated blood inside of the sac. Authors tell us this becomes slightly or even fully organized. It becomes finally converted into a grossly mass by this organization. If we intercept the flow of blood through the artery, that in the sac remaining quiet, will, as in any other vessel, coagulate speedily. There we have not the concentric lamina, as this takes place only when the blood is slowly coagulated.

In this way the efforts at a spontaneous cure is began. The circulation in the wounded artery is obliterated, but is kept up by the collateral branches. Cures are frequently affected in this way. We can facilitate the cure by lessening the flow of blood through the part, by low diet, rest and cold applications. Accompany this by pressure over the part by a com-

press, ~~But~~ lymph will be effused and seal the orifice. When the circulation by the collateral branches is established the tumour will be absorbed. When the aneurism follows wounds we can generally accomplish this. I have had to take up only 1 artery in 14 years, and this was in a bad constitution, with fluid blood which I could not get to coagulate.

In 1 case of aneurism of the palm of the hand I affected a cure in 3 weeks by compression with an instrument.



One of the cases I have cured in the same way. In all cases of traumatic aneurisms, where coagulation can be brought about — if not in large arteries from lacerations or gun-shot wounds — you can affect a cure.

Scarpa calls a dilatation of all the coats of the vessel a true aneurism, but I think we have no true aneurism. But when the internal coats have given way and the external remains it may be called a real aneurism. When all the coats are wounded it is called a false aneurism.

Lecture 60th February 6th 1843

The old Surgeons thought that all aneurisms must be cured by application of a ligature above and below the aneurismal tumour, and by laying open the sac and turning out the coagulum of blood in it. They often made a large wound and allowed it to suppurate. By this treatment some have recovered, but there is always great danger. If on a limb, this was liable to mortification from obstruction to the flow of blood to it, and from the size of the wound made in order to apply the ligatures and lay open the sac, there was danger of great Constitutional disturbance.

If the aneurism be a spontaneous one the internal membrane of the vessel is detached from the external, and is thrown up into rugæ or folds. This may arise from ossification, or from a deposition of fat between the coats. Therefore the artery where the aneurism exists is most diseased. In some persons there is a great liability to aneurisms ~~through~~ in various parts of the body, but more particularly about the joints, from a disease of the whole mass of arteries. If we open

the aneurismal tumour and turn out the coagulum of blood in it, then put on a ligature immediately above and below, we apply them at the most diseased part. The ligature is apt to give way, blood is thrown out and the patient expires. Hunter made the great improvement in the treatment of aneurisms. He never thought it necessary to open the aneurismal sac, and therefore left it alone, and tied up the trunk of the vessel going to the popliteal aneurism, instead of tieing up the vessel immediately above and below as the old surgeons did, he tied up the femoral vessel just after it perforates the tendon of the adductor muscle under the sartorius, and allowed the blood to coagulate in the sac. He allowed the walls of the sac to be thinned by absorption and the tumour to be removed by the natural efforts. By this he avoided the danger of inflamation from laying open the sac, and avoided tieing the artery in a diseased part.

"The ligature should always be put at such a distance from the aneurism, as to insure its being placed upon a sound and healthy part of the artery.

Nature is always making an effort to effect a spontaneous cure.

When an aneurism occurs in the ascending aorta it always in my observation, has endeavoured to push out the intercostal spaces, and causes a discoloration and livid ity of the skin covering that portion of the breast.

It also often produces intense and severe Coughing and Suffocation.

Put such Cases immediately on a course of depletion to produce Coagulation; and retard by every possible means the circulation of the blood; keep the patient rigidly confined to bed in the horizontal position with his head and shoulders slightly elevated at an angle of about 45° and perfectly quiet; on rigid low diet and avoiding every source of excitement.

There is now always some hope of effecting a cure, in aneurisms occurring in the large trunks of the arterial system, which are situated in the cavities of the body.

Keep the pulse down to the lowest degree by repeated bleedings, avoid every cause of excitement,

either of mind, body or passions; keep the patient at perfect rest and upon the lowest possible diet; and at the same time employ therapeutic agents as Digitalis, acetate of lead and Vinum Colchici, which will assist depletion in moderating the force and rapidity of the circulation, and thereby favour coagulation of blood in the aneurismal sac until it is entirely obliterated and a spontaneous cure effected.

We can also cure aneurisms occurring in the smaller branches of the great trunks, or the arteries of the extremities in the same way; but always with obliteration of the cavity of the artery, and the circulation going on by means of the contiguous branches. The main artery at the seat of the aneurism is completely obliterated and converted into a kind of ligamentous substance.

I have only known one variation from this course, and that did not occur in my practice.

As a general rule I would lay it down as an axiom in Surgery, that in the small arteries in the extremities, a spontaneous cure is not effected

mainly by the coagulation, but also by the pressure made by the coagulation on the artery closing its calibre, and thus compelling the circulation to be carried on by the branches which go off above the aneurism associating with those which come off below, and which then become considerably enlarged and dilated so as to accomodate the change in the course of the circulation.

I ought to caution you, however against too rapid and vigorous depletion in these cases. For by excessive depletion you will bring on a constitutional irritability from excessive loss of blood; the pulse will become irritable, and although the symptoms will resemble those of an exalted action, yet such is not the case; the system is in a directly opposite condition.

The pulse becomes very rapid and quick, beating from 120 to 140 in a minute, but it has no strength.

All such cases are exasperated when they are raised, or sit up. You should give such patients moderate stimulents, as the carbonate of Ammonia in

5 grain doses and wine whey

There is always danger, if you bleed too boldly and rapidly, of producing the state. /See Hall on bloodletting/

You should depleate and starve for the purpose of lowering the action of the system, not of prostrating it.

In aneurisms of the arteries of the extremities, after you have caused coagulation, you must make pressure upon the aneurismal sac, lightly and slowly at first, but gradually increased, either by the bandage or the thumb screw.

I have frequently succeeded in effecting cures in such cases, without the necessity of resorting to an operation.

The idea of taking up a main arterial trunk, is not so pleasant nor successful a operation as is generally supposed.

We should always endeavour by remedial agents to effect a spontaneous cure, persisting in their use; and only resort to an operation as the last means of cure.

There is no such a thing as a diffused aneurism

it is only an infiltration of blood into the cellular tissue, or an ecchymosis.

Persons will have an inflamation near an artery, the vasa vasorum become injected in consequence, and the coats of the artery become softened and diseased, and a rupture may take place. (may any straining or exertion the patient may make" / Taken from A. Carpenters Notes /)

Lecture 6th of February 7th 1843

If we reduce the patient rapidly a state of nervous irritability is produced, which is attended with a frequent pulse, 125 or even 140 to the minute. The pulse by the depletion is diminished, but the momentum of blood is increased when this irritability arises, is increased, and there is danger of the sac giving way. Diminish the quantity of blood so as to keep the pulse below 100 in a minute, or if possible 80 in a minute, and keep it so ft. In large aneurisms I have generally bled 1 in 4 or 5 days. When, after depletion has been carried out for 2 or 3 weeks if the pulse is disposed to be-

come rapid, Digitalis is a good remedy. In my opinion it does not weaken the force of the pulse, but diminishes its rapidity.

Colchicum is the best remedy in these cases; it increases the flow of urine and produces perspiration, while at the same time it lowers the pulse. Two grains of the powdered root in these cases does more than the vinous tincture. It may be combined with other remedies which increase the action. It may be given in 2 grain doses of the root, combined with 2 of Dover's Powder & 1/2 of Calomel. This combination will increase the flow of urine and the perspiration, and at the same time act upon the liver and lower the pulse.

Other remedies have been resorted to for the purpose of increasing the Coagulability of the blood, as the Iodidum Potassii. It may be given in 3 grain doses 3 times a day. This remedy does appear to increase the rapid Coagulability of the blood, and Contractility of the vessels.

It has been recommended to apply ice to the aneurismal tumour, which was the plan recommended by Baron Larrey. In Aneurism of the arch

of the aorta, by the application of ice over the chest, there would be danger of the patient contracting a cataract on account of the recession of the fluids produced by the application of the ice. Even refrigerating lotions over the chest in these aneurisms, are apt to produce this inflammation from the same cause, the patient being weakened by the previous means employed for the same effect. In popliteal Aneurism I would use this remedy, as here there is no danger from the application of it.

When we cannot cure the patient by these means, and the tumour is increasing in size, and we cannot effect a coagulation of blood within it, then we operate to effect a cure. The operation is merely following out the same indications that one followed out by other means. It does not cut off all the blood from the parts below as there is some passes through the collateral branches. By it we favour only the coagulation of the blood in the sac, which is done in a short space of time, while by the other plan we produce coagulation slowly.

When the operation is done early, before coagulation of the blood in the sac has taken place, and

when the collateral branches are not carrying on the circulation of blood, it may then cut off all the circulation of blood to the parts below, and the limb may be without the flow of blood in it perhaps for a few hours. When done early, before any obstruction in the tumour has had time to occur, or before coagulation in the sac is effected, we perform the same operation which is done in cases of wounds on the field of battle. We do it before the collateral branches have had time to enlarge, which takes from 2 to 8 hours after the ligature is applied. The limb then is in a state of absolute quietude. We perform then the same operation which is performed after wounds of the large vessels, and what might be called the primary operation, there being a state of health at the time. We apply the ligature and by it entirely obstruct the circulation for a time. The limb is from 2 to 6 hours - the time between the application of the ligature and the passage of blood through the branches - in a state of absolute quietude, which state Brown called direct debility. It is incapable of developing the phenomena of sense or motion, or only in a slight degree.

During this period of direct debility, there is an accumulation of excitability. As long as the limb is (without) pressure from circulation this power of accumulating excitability is increased. If 2 or 3 hours elapse after the application of the ligature without any circulation in the parts below there is great danger. The most inordinate excitement may arise, and the limb will not only be exceedingly hot but exceedingly painful. The same thing is observed in boys who have been snow-balling. During this time the circulation of blood is checked in the hands, and if it is restored rapidly by holding them before a fire, a pricking, painful sensation follows with increased excitement. If this goes on there may be vesication, ulceration and sloughing of the parts.

In freezing parts of the body, the mischief arises - not from the low temperature to which they have been exposed but from the too sudden application of heat. This subject of retarded circulation after an operation is to be understood in the same way as heating a part too soon after great cold. All writers agree that the mischief, after exposure to cold arises from the too sudden application of heat. If a cold day was followed by a warm

day, the soldiers, in Russia were always affected by it, having local inflamation and fever.

The moment the collateral circulation occurs after the application of the ligature to the main trunk, there is increased excitement. The patient has throbbing, pricking and darting pains and swelling of the limb; indeed, all the symptoms of inflamation are exhibited.

(Hot ~~you must apply~~) cloth bags, or hot sand bags to the limb after the operation, (is one that) is apt to produce great mischief. I always content myself with gentle warmth to the part. We know that some warmth is necessary to prevent collapse or mortification, but I use it only moderately. If it be cold weather, I apply flannels over the parts which have been warmed by the fire. I prefer having no more than these on, which are bad conductors of the heat. They may be left on for 6 or 8 minutes, then removed and others applied.

If the weather be hot I am satisfied with the temperature of the room. If this be 75° or 80° there is no danger of collapse or mortification.

If symptoms of engorgement arise, I

* In some cases I have used ice or snow and water.

use evaporating lotions over the part, as whiskey and water, or cold water, salt and water, or a solution of lead in water, to prevent too rapid and too high excitement. + If allowed to react rapidly, all the symptoms not only of congestion, but of local inflamation will arise.

Eighty degrees I think is amply sufficient for the limb, and the moment the circulation arises, I remove this and apply evaporating lotions.

If there be any pulse in the extremity, I elevate the limb to guard against too high action after this accumulated excitability

All the bad cases after the operation which I have seen, have originated from a neglect of this rule. In one case I operated, after which the collateral circulation returned. A pupil put a hot brick on the side of the extremity at the instep. Next morning I found the brick sunk in a gangrenous part, and I was compelled to amputate. The moment the collateral circulation returns keep it down.

In by far the majority of cases good surgeons have avoided operating too early, and have endeavored

the sac by pressure with the fingers, which becomes filled when the pressure is removed. If in this state you endanger the loss of vitality in the limb from a want of power of dilatation in the branches. The limb is totally paralyzed, torpid and numb, and from this state it may never recover. And from the accumulation of excitability we may have local irritation, blistering, or mortification of the limb.

On the other hand, if the operation is delayed too long after we have failed by other means, we may have an inconvenience, but not danger from too great dilatation of the collateral vessels. We may have these emptying into the sac and keeping up a flow of blood through it. This only lengthens the cure, and is not an indication of a failure of the operation.

Brasdor, a surgeon of Spain, suggested the idea — because in large aneurisms in the cavities you could not apply a ligature between the aneurismal tumour and the heart — of taking up the vessel on the distal side of the tumour and not on the cardiac. In aneurisms of some ves-

sels there is no room for coagulation after the liga-
ture is applied on the cardiac side. You cut off the
circulation and produce a renova of the blood there.
He therefore suggested the idea of cutting down on and
applying a ligature around the artery on the remote
side of the tumours. On this ground it was not neces-
sary to cut off all the circulation.

Being tried upon unfavourable cases, and
as there the operation being unsuccessful, it fell
into disrepute. But within the last 15 years Mr Mord-
up of England revived the old and original plan of
Brasdor of cutting down on the distal side of the tu-
mour. By it you can diminish the circulation of blood
through the artery, and by Valsalva's treatment we can
effect a cure. Now it has become the established
operation. When we have delayed the operation, & the
application of the ligature alone the aneurismal tu-
mour, although we do not cut off the circulation of
the blood, it enables us by Valsalva's plan to effect
a cure.

We not only find that it moderates the momen-
tum of the blood, but it diminishes the size of

to effect a spontaneous cure. They gain this much by following this plan. They produce obstruction in the circulation of the main trunk, and some degree of internal coagulation. By this they compel the blood to seek a place through the collateral branches. Therefore when we are compelled to operate, we do it under this advantage. There being circulation through the collateral branches, they avoid the coldness and insensibility of the limb after the operation, and avoid the increased excitement. Then the warmth will be preserved and the sensibility in some measure.

By producing coagulation in the aneurismal sac, the artery is partly obliterated, and the blood compelled to circulate through the branches, which become enlarged. It is therefore worth while delaying the operation - until other means have been employed which produce this in some measure, for this alone. But in more than ½ yes full ⅔ of my patients I have succeeded in preventing an operation by Valsalva's plan of treatment.

When we operate, after this has been commenced, we operate certain of no immediate collapse

and torpor of the limb, and certain that there is no danger from accumulation of excitability.

But by delaying too long the operation, until the collateral branches are large and can be felt pulsating, we produce by it no immediate or apparent effect. The circulation continues, and the warmth and sensibility of the limb is kept up, while the pulsation in the tumour continues. The operation will still diminish the circulation of blood, and produce coagulation. Although the tumour may not immediately cease to pulsate, it will finally.

If we allow the case to progress too long and the vessels become very large, you may fail to produce any effect upon the tumour, the pulsation still continuing. But this is no barrier to the operation, as it favours coagulation and the artery will be obstructed. By it the patient will be cured, although not so speedily as when the pulsation in the tumour ceases.

These 2 points in the operation I am (anxious) you should comprehend.

If too early, perhaps 6 or 8 days after the aneurism is first noticed, and while we can empty

× It does not occur to a dangerous extent in the upper extremities. In the upper extremities I have never seen a dangerous accumulation of excitability

the tumour. It becomes smaller and seems like a hard and stone like tumour. If we take up the vessel on the cardiac side, it will eventuate in an increase in the size of the tumour, a fact long since known and spoken of by Surgeons. It stops the blood is dammed up and forced back into the sac, enlarging it, and circulating there sometimes making the tumour, to the feel as hard as iron. In one case in which the ligature was applied on the Carotid on the Cardiac end of the tumour, there was an increase in size, the tumour acted as a foreign body in the neck and was the cause of death. Whether from pressure on and obstruction to the return of blood through the jugular, was a cause or not, I cannot tell.

Whenever we operate in the way recommended by Wardrop- that of taking up on the remote side of the tumour- we find that the tumour flattens down, and becomes soft and yielding, and that the patient always does better. This (~~explanation of this~~) diminution in size of the tumour may be explained by the common law of Hydrostatics- that all bodies in motion have a tendency to attract those

at rest. The blood circulating through the vessels below draws off all the blood in the sac. If there be water in a puddle or in a tub through which a hose runs, if we let a stream of water pass through the hose, that in the tub or ditch will be drawn into through the lateral pores of the leather and pass off with that in the hose. In applying the ligature here the tumour becomes flaccid and pulseless on the surrounding parts, and the blood in it is carried off in the vessels through which the other circulates.

This was originally intended for, and confined to aneurisms of the Carotid, but now it is applied to aneurisms of other arteries. All the arteries have been taken up and cures have been effected in all of them. Now this operation (is in vogue), is (the) established (and improved operation) in surgery.

Lecture 61st February 8th 1843.

Arteria Innominata. + Operation for taking up the innominata. The operation of taking up this artery is unfeasable and unwarrantable in cases of Aneurism & no case in which it has been taken up has the operation been successful. The space on both the distal and remote sides of the ligature when passed around is so short, and the artery so large, that there is no room for internal coagulation and subsequent Contraction and obliteration of the artery.

But since the discovery of Brasdor, has been revived by Wardrop, this operation has been carried out in aneurisms of the arteries, Carotid and Subclavian, when low down in the Chest. If we have an Aneurism low down on the Carotid or Subclavian arteries, it is best to operate on the distal side.

If of the Subclavian artery it is best to take up the Axillary artery, as we have by this the tumour diminished as explained in last lecture. The 4 thoracic branches are given off from this artery and when it is taken up in the Axilla we have these given off above. If we operate above, we have the

thyroid and cervicals branches going off still higher up. These branches were thought insurmountable difficulties to the operation, but this is a mistake. By the operation we moderate the circulation, after which by rest, depletion and low diet we effect a cure.

The operation of taking up the innominata I consider an exploded one but will give it for your satisfaction.

Operation. (Anatomy of part given) In the operation performed by Dr Mott, he made an incision parallel with the clavicle first, then another crossing this, which was upwards. But the only way in which it can be done with any chance of success is above the sternum. Make an incision about 1½ inches in length in the mesial line above the sternum, cutting through the integument then separating the Sterno Thyroid and Sterno Hyoid muscles. Keeping the mesial line you cut and down scratch through the cellular texture and you come down on the artery. Then run a curved tenaculum with a ligature in it, around it.

Subclavian. This artery is taken up as it escapes through the scalenus anticus muscle. An operation for placing a ligature around it on the inside of this muscle, has been thought out of the question, but a good operator may take it up here. On the right side I am sure I might take it up where it gives off the thyroid axis, but the difficulty lies in effecting a cure as there is immense Collateral circulation, which being kept up will prevent the vasa vasorum from producing a union of the internal coats where the ligature is applied. In taking up the Subclavian now, no Surgeon thinks of taking it up nearer the heart than the scalenus Anticus muscle.

It can be taken up from above the Clavicle just as it comes out through the scalenus anticus muscle to go down under the clavicle. We operate just at the supra-clavicular pit, which is a space filled with adeps at the clavicular end of the sterno mastoid muscle. At this place we have the 4 inferior Cervical and the superior dorsal nerves lying over the artery, but the vein in this case departs from the general rule in not following the course

of the artery. It seems as if divine Providence had directed this so, for the vein runs downwards and in front of the artery and is out of the way in the operation. We have therefore nothing but these nerves.

Surgeons have made crucial and other incisions for the purpose of taking up this artery, but these are not necessary. I make 1 incision above the clavicle about 1½ inches in length running along the Sterno mastoid muscle. I cut through the skin and superficial cervical fascia and the deep cervical fascia. I then bring in view the tendon of the omo hyoideus muscle running nearly parallel with the incision. This is the landmark. We cut below this and dissect away the glands until we bring in view the Scalenus Anticus muscle where we have another land mark. Here we see the small phrenic nerve which runs over the anterior surface of the scalenus muscle. We then bring in view the nerves which lie over the artery, which by running in the finger may be felt pulsating. With the handle of the knife we now bring it in view.

A variety of instruments have been invented for the purpose of passing a ligature around

this vessel, but any curved canula or tube will do.
I have used a modification of Dessault's instrument by
Dr Gibson, in which the hole for the ligature is on the
cardiac, instead of the distal end of the catch spring
as in that of Deso. This is a neat instrument,
but it is costly and liable to get out of
order. I use a curved silver probe with
an eye in it, in which I fix the ligature. I pass this
under the artery, then place my fingers on the end,
seize the ligature and draw it out.

Having passed the ligature under the arte-
ry, we endeavor to tie so tight as to cut the internal
and middle coats (of the artery) and by it keep them
in contact so as to insure union of them by the adhe-
sive inflamation, which will take place by the time the
ligature ulcerates through. The ligature generally comes
off in 3 or 4 weeks; I have known it come off in 2 weeks
and in other cases in which the action was feeble
it has required 6 weeks. When union has taken place
it comes away without ulceration or secondary hem-
orrhage. I pass the ligature around without dissect-
ing or detaching the artery from the surrounding parts

which some surgeons do by handling and passing the fingers under it for the purpose of showing it to a class.

In tying the ligature I prefer the double knot which never slips and does not require machines or instruments for it, or does not require the finger of an assistant to hold it as is done in the first part of the common knot. The thread should be as small as possible when of sufficient strength. You may use the common silk, but I prefer the saddlers silk.

Ligatures of animal matter have been used under the idea that the wound might be closed over them, and there be absorbed which has not been found to be a fact. They are large and clumsy and are liable to slip, and when the wound is closed over them act as any other foreign body.

When I hear a cracking noise as I apply the ligature, I know the internal and middle coats of the artery have given way.

Then cut off 1 end of the ligature and bring the other out through the wound.

Some have cut off both ends of the silk

ligature (which is now a foreign body than the leather used for animal ligatures) - and closed the external wound. In some cases these have not been heard of, but in others they have kept up suppuration for a long time. It is likely in the cases in which they were seen, they were not absorbed, but became encysted as balls do in the body.

Ligatures of reserve are not necessary as they act as foreign bodies, and instead of preventing they may cause ulceration and secondary hemorrhage.

I could not be persuaded to perform this operation in any other way than that of making only 1 incision.

Carotid Artery. This artery can be taken up at any part of its track, the superior, middle or inferior portion, as there are no branches given off.

Middle portion. We cut through the superficial then come on the deep fascia which we turn up. By this we expose, and then we turn up the fibres of the tracheal muscles by which we expose the sheath of the vessels. We see the Omo Hyoid muscle crossing this sheath in front. The vein is on the ante-

side, the artery on the inside, and the pneumogastric nerve lies between and behind these. We see here the descending cervical nerve, which is only a motor nerve having no sensitive branches, but must not be cut. I always cut down on this side of the trachea as by cutting through the sheath at the outside over the vein, this may bulge out like a hernia and give some trouble. I have seen this bulge out, and it occurred in a case related by Sir Astley Cooper. I always cut down directly over the artery.

Some surgeons cut away the cellular texture and destroy by it the vasa vasorum, to so great an extent as to run 2 or 3 fingers under the artery. Then they put 2 ligatures under it, tying 1 as high up and the other as low down as they can. The consequence is that all the part of the artery between the ligatures must slough. If we destroy the cellular texture so as to raise the artery and apply only 1 ligature around it, then the artery would slough through the extent exposed and the patient would die of secondary hemorrhage. If you operate in this way — that of raising up the artery — you must apply 2 ligatures.

Abernethy made an improvement in this operation by removing the portion of the artery between the ligatures. The part suppurated, granulations shot up, and the wound closed.

The application of 2 ligatures makes the operation a bad and clumsy one. In all cases I only apply 1 ligature which I pass around the artery without raising it up: and by this I leave the vasa vasorum unbroken

If not cautious, the nerve, which lies in the space between the two cylinders of the vessels behind, may be included in the ligature.

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Lecture 62nd February 9th 1843

The incision for taking up the Carotid should be made over the artery and as short as it can be to get the ligature around, and not in the course of the Sterno-mastoid Muscle as the old Surgeons did it. By making it over the artery we have nothing under this muscle in the lower operation, and around it entirely in the upper. For taking up the left Com-

tid vessel cut deeper, and the operation is more difficult than that of taking up the right.

All the minor arteries as the facial and temporal are so accessible, that from the knowledge of their course only they may be taken up.

Internal Carotid. The idea that this cannot be taken up, and that it is better to take up the common carotid where it is required, is a mistake. It may be taken up in cases of wounds. It may be taken up just behind the angle of the jaw or above where it bifurcates.

If an incision be high up the carotid may be taken up below, but if very low down it should be taken up above the tumour, performing the operation of Brasdor.

Femoral Artery and Iliac. Iliac. The operation for taking up this may be performed by making an incision above and transverse with Pouparts ligament, cutting through the fascia, and then pushing up the peritoneum, when the artery will be

seen. This operation may be performed whether for the Common or external iliac.

We have 2 operations for taking up the Common iliac artery. In one we cut through the Skin and fascia and expose the external Abdominal ring. We lay open the Canal, search for the internal ring, introduce the finger and push away the peritoneum when we come on the artery. After this operation the patient is very liable to hernia from having the inguinal Canal laid open.

In the other Sir Astly Cooper makes a crescentic incision on the Concave upwards. In it we expose the external pudendal vessels which it is better to cut across and place a ligature around, but have nothing to do with the epigastric artery. We cut through the superficial fascia to the abdominal Canal. We cut this open by cutting only the oblique bands of Nimblow, so as not to weaken the part. We then push up the fibres of the internal oblique & transversalis muscles, and follow up, in the male the Spermatic chord, in the female the round ligament to the internal ring. We push

the finger in the ring and just up the peritoneum when we come in contact with the iliac artery where it gives off the circumflexa. We may do this without cutting through the fascia transversalis. The artery lies here over the fascia iliaca, but there are some fibres of cellular substance over it which are sometimes condensed, but you can easily get an instrument under it. We pass a ligature around the artery, which may be done with the common eye probe bent. cut off one end, leave the other out, and close the external wound by which we prevent an inguinal hernia.

I make the external incision straight by which, and pushing up the peritoneum which is the great secret in the operation, I can take up this artery high up.

Femoral Artery. I take up this artery at the space between the upper and middle third of the thigh, which is the proper place. It is superficial here and is not bound up in cellular substance. I always operate here, and I am not

guided by the Sartorius Muscle in my incision, as they do not correspond, but pass each other at acute angles. If I were to take this as a guide, I would cut outside of it for the artery below, and inside of it for the artery above.

I cut over the course of the artery which may be felt pulsating in the hollow of the thigh, make an incision 3/4 inches in length and deep down on the artery.

The first thing which is seen is a branch of the Saphena internas vein. We cut near to but do not cut this vein. We cut down then through the fascia lata of the thigh, and through the fat and expose the sheath of the vessels. The nerve is anterior to and the vein on the inside of the artery. I push the instrument between the vein and the artery, when if you wish to see if the vein is included you can cut this sheath up a little; and by this too you can see if any small branch is given off here.

At the place where this operation is performed there are no branches and none for a considerable distance from it,

which makes this operation better than the one below, as the collateral branches keep up a circulation and prevent the formation of a coagulum. We are here below the gland in the groin and above the place where the branches are given off.

There are cases in which we cannot take the artery up at this place, as when there is an aneurism there. When the aneurism is here we must take it up above. Here we take it up under Poupart's ligament a little above where it gives off the profunda. Here we have a small space of ½ or ¾ of an inch, at the upper part of which the artery gives off the epigastric and circumflex iliac. We do not place so much upon the coagulum for the prevention of hemorrhage, as upon the contraction and union of the coats of the artery, which is prevented when there is a branch near above the ligature. One half inch of space is sufficient above the ligature, but an inch if it can be had is desirable. I have tied the external iliac with only ½ inch of space above, and the ligature has come away without secondary hemorrhage. We should

also have some space below the ligature to the branch though this is not of so much importance as above. When the ligature is applied to the main artery, the collateral branches above anastomosing with those below carry blood into the main trunk of the artery below. If there be a branch near the ligature, which this gives way we may have hemorrhage from a retrograde motion of the blood in the artery below.

Lecture 64th February 10th 1843.

Axillary Artery. This is the most difficult artery in the body to be taken up. Surgeons boast of having taken up the Subclavian, but it is child's play to this. We make an incision below the clavicle, over the artery, in the course of the fibres of the pectoralis muscle. This incision should be 2½ or 3 in in length. Sometimes it is necessary to cut to the interspace between the Pectoralis Major & Deltoid Muscles. In muscular subjects you may search between these for the artery, but I prefer separating the fibres of the Pectoralis. The parts cut in

this operation are very vascular, sometimes I have been compelled to tie 3 or 4 of the Thoracic Arteries. The cephalic vein is seen, which must not be cut. If cut I believe the hemorrhage would be fatal, the blood coming from the axillary vein. We now dig between the veins and deep in, through the cellular texture where we find the artery.

Amputation. This is an operation which is easily performed. It requires little knowledge of the anatomy of the parts or little skill. The surgeon who performs it a few times operates with as much ease and neatness as if he had performed it several hundred times.

The diseases which require amputation may be divided into 3 classes.

Specific Diseases, as Scirrhous and Fungus, but more particularly fungus as this is almost always found on the extremities.

Mortification.

Wounds & Injuries particularly of large joints and

bones.

With regard to specific disease, we have a great variety, beginning sometimes in the bones, sometimes in the periosteum and other parts, as Osteo-Sarcoma and Spina Ventosa, which I consider the same, the one beginning in the bone, and the other in the periosteum from morbid nutrition, fungus, Schirrous, and Carcino- Condromatous tumours. These are known from the decay of the general health, and from their refusing to yield to proper treatment.

Many are opposed to the removal of a limb for a specific disease on it, saying the disease will return and destroy the patient sooner than if not removed, and that with it they might live a few years.

When the operation promises an unfavourable result, as it does when disease exists in the lungs or viscera of the abdomen, or when we see the disease will speedily return, we should only palliate and not amputate. But I have in some cases removed the limb and the disease has not returned.

Taking all the circumstances together, there

is as much in favour of an operation (here) in the extremities for specific diseases as there is in other parts of the body. But there are certain rules by which we are to be governed in these Cases.

If the viscera of the Chest be diseased, a narrowing, Contraction, or Constriction of the chest, or dulness of Sound upon percussion over the chest indicating the existence of tubercles, it is folly to amputate, as there will be a speedy return. These patients pass off more rapidly after the operation than they would have done if not performed. The disease appears to divert the fluids from these diseased parts.

If there be a chronic disease of the liver, a sallow or pale Countenance and pale lips, the blood in these not being decarbonized properly, or enlargement or disease of the spleen, or enlargement of the pancreas which may be felt, a hard tumour, in the emaciated state of the patient, with indigestion or vomiting of the food, the operation must not be thought of.

These Cases should only be treated by palliatives, out door air, wholesome diet &c.

Besides this state of the internal or lo-

cal disease, the condition of constitution at large must be looked at. If there be great prostration of the system, or if the patient has a cough, you must first overcome this, or any foreign disease before the operation is performed.

But the state of the tumour is of great moment with regard to the operation. Some say that the earlier the operation be performed for specific disease the better. In a work by M. Johnson on cancers, he states that if we operate to remove these early, the disease is more apt to return. That when the disease has lasted 6 or 8 years, it appears to be isolated by lymph being thrown around it, when the general health rallies and the disease ceases to irritate. Whereas at the first it is not only more irritable, but the constitution is more irritable, and in operating, we operate on a morbid and diseased constitution from which, it is more apt to return.

According to my experience this has been the case. By operating high up above the disease in its forming stage you may possibly overcome it, but these cases are very rare. If performed before the

progress of the disease is checked, when the Constitution is irritable, it will return. My plan before operating is to get the system quiet and get the disease surrounded by a barrier of lymph, by general and local treatment; then the operation may be performed with more certainty.

I always require the general health to be good and the disease confined to one part of the body. If we have the disease in the two limbs I do not consider an operation warrantable.

Regarding the condition of the patient with specific disease, if it exist, it is best to operate, but do not promise a cure. You may promise a relief from a load which is troublesome and the sight of which is distressing, for a time, perhaps 10 or 12 months during which time the patient is easy.

Amputation of the Toes and Fingers. If we have a malignant ulcer, which will not yield to proper treatment, or a tumour of the bone, we recommend an amputation.

Amputation of the Toes. In all cases make the flap on the plantar surface. Commence the incision before the joint on the plantar surface, cut backwards towards the inferior part of the joint cutting the flexor tendons, then cut downwards in the joint. When this is done by a little force the toe can be thrown back and the incision made over the joint on the dorsal surface.

Then take up the 2 digital arteries, bring the flap from below in contact with the skin on the dorsal surface, make a few stitches to keep it there, lay a piece of lint over the part and apply a roller.

By making the covering to the stump from the skin on the plantar surface, we enable the patient to walk on even stumps the toes without danger.

Never make lateral flaps or flaps from the dorsal surface.

Amputation of the Fingers. The operation for amputation of the fingers is the same. Never make a lateral or dorsal flap, but always make it from the palmer surface.

In amputation of the toes make the flap from the plantar surface; in amputation of the

fingers from the palmar surface.

Metatarsal Bone of Great Toe. Commence 1 incision under the joint of the great toe, carry it around to the inside and upper part of the toe and along up the inside and upper part of the metatarsal bone above the union of the bone to the internal Cuneiforme. Then commence another below the joint of the great toe with the first; carry it between the toes and over the dorsum of the foot to meet the first at an acute angle.

When this is done divide the parts from the bone and disarticulate it at the internal cuneiforme, or if this bone be diseased, disarticulate from the Navicular. Having taken out the bone you can easily take up the arteries.

By these incisions we have the plantar part of the foot pressed upon.

Middle Metatarsal Bones. If we wish to amputate here, to take them out between the other metatarsal bones, which is better than to remove the whole hand or foot, we split up the parts between, take out the

bones and bring the parts together. This makes a delicate cause a small hand or foot, but it is better than to have the whole removed.

Lecture 65th February 11th 1843

Amputation of the Metatarsal Bones. For frost bites and the like formerly, it was customary to amputate the leg low down. Here they have been unable to walk on the stump, and unable to wear a leg. On account of this Chopart invented the operation of cutting off the Metatarsal Bones.

The operation is performed by making a flap from the plantar surface of the foot with very slight extension of the skin, so as to have a surface not easily injured, over the stump. The operation may be performed by dividing the parts at the posterior extremity of the metatarsal bones or between the tarsus & metatarsus.

Chopart made an incision over the instep down to the bones. He then separate the bones by pressing upon the front part of the foot and pushing the [illegible] between them. Jan Comy

the cutis between the bones to the sole of the foot, and cut through the skin of the sole from within forwards so as to make a flap. It may be performed in this way through the bones of the tarsus.

By wearing a boot or shoe stuffed in the front part, the patient can get along after this operation with very little difficulty.

Amputation of the Leg. The first step of this operation, no matter at what part of the leg (it is performed at,) is the application of the tourniquet.

Before fixing this we apply a compress bandage, which is done by doubling a few times, the end of the roller into a sort of compress, which is applied over the artery, and a few turns of the roller passed around it and the thigh. If we amputate below the knee, we prefer to apply this over the artery just above where it penetrates the tendon of the adductor longus muscle. The advantage of

the bandage lies in its preventing a thickening of the skin. We then put on the tourniquet with the plates in contact and over the compress and artery, and with the buckle away from the plates at least 3 or 4 inches. Some have a pad under the buckle for compressing the artery, but this is a bad arrangement.

We next ascertain if there be any hair at the place where we intend operating, this should be removed immediately before, or if it can be 2 or 3 hours before we operate.

The next (subject) is the point of amputation. I operate low down on the leg if the patient be a (plethoric), large and corpulent person. The operation here will be attended with a less violent shock to the system from the smaller size of the wound. The extent of surface operated upon makes the wound, and in many cases I would operate here on this account alone. That it is dangerous to cut through the tendons in the operation I think is a mistake. I have operated here and the patients have done well.

you have a smaller space, a smaller wound and less irritation.

The patients when operated on below cannot wear a cork leg. The may wear a wooden leg fastened to the side of the other, on which he can walk. If he were to have a leg fastened to the knee as is done, he would have this long stump projecting out behind on which account he may desire you to remove the stump near the knee.

If a case of this kind present itself, I would not recommend you to amputate the stump. I never (~~for~~) amputate a limb for the patient's convenience, when the operation ~~was~~ is not required on other grounds. (~~In one case operated upon in one of our~~ public institutions the patient after 3 days.)

On account of this we prefer to amputate high up. Barron Larry prefered to amputate so high up; that the popliteal artery might be taken up before it bifurcates. But now surgeons prefer to amputate below the tubercle of the tibia about 1½ inches, but in muscular subjects you may operate lower down.

All surgeons operate by one of three ways,- either by a flap which is made lateral or posterior, or by a circular incision. Almost all now prefer operating with the flaps.

If we operate by the lateral flap there is danger of the tibia projecting and exfoliating as I have several times seen.

If we operate by the posterior flap, hinging a flap from behind over the stump, the fluids will collect in it. I have seen this and have had to make incisions through the flap to let out matter.

On this account I prefer the circular incision, as it is not liable to these objections and makes as good a stump as the other.

The side on which we stand is a matter of consequence. Liston gives directions for this which are worth considering - that the operator should stand so as to apply the saw on the tibia and fibula at the same time, cutting through the fibula a little before the tibia. For this purpose we stand on the inside of the (patient.) leg

Taken 5 times

Having done this I apply a 3 tailed retractor running the middle tail through the interosseous space, and draw up the parts. Then apply the saw standing on the inside - cutting both bones at the same time, but finishing with the fibula a little before the tibia.

For taking up the arteries I prefer a tenaculum, seizing with it the artery alone. Sometimes I even dissect a little around it to get it from the vein and nerves, and then apply a ligature around it. It is equally important to avoid including in the ligature fascia, muscle or ligament.

If you tie the vein you may have a dangerous phlebitis; if the nerves you will have spasm and pain, and if the muscle the ligature may remain on for months.

Having taken up the large arteries you loosen the tourniquet, wash the stump with water and a sponge, and look for small bleeding vessels.

Having taken up the arteries some surgeons immediately drop the stump, which should

turn over 3 leaves

piece of patent lint over the stump which we keep wet with water or alcohol and water.

Then apply 3 or 4 turns of the roller around the stump. Baron Larrey insisted on this, saying the fibula and tibia are brought together and remain there by ossification; that if the bandage is not applied they grate and move about. I have no doubt this is correct.

The angles of the flaps which surgeons say so much about are not of much importance as the projecting points will be absorbed.

Amputation of the Thigh. In amputation of the thigh we apply the tourniquet higher up, instead of applying it between the lower and middle thirds of the thigh, we apply it between the upper and middle thirds. Some surgeons prefer using pressure with the thumb over the artery, saving by it perhaps a pint of blood. If I amputated the thigh in a debilitated patient I would prefer this, saving by it the blood in the veins, which if the tourniquet is prevented from returning. Or

if I amputated high up I would prefer it.

If the thigh be small I prefer the circular operation, making lateral flaps, but if large I prefer the flap operation, in which the flaps are generally made anterior and posterior. I prefer the lateral flaps as the fluids may run off at the lower angle, but the English surgeons prefer the anterior and posterior.

Anterior and posterior flaps. It is always well to keep the leg elevated at an angle of about 45° degrees, the position it is to be left in after the operation, by which we keep the muscles regular.

We introduce the catlin from within, and carry it outwards, downwards on the bone, cut loose the parts from the bone and then carry it through to the outside of the limb. We then cut through all the parts by carrying the catlin through downwards and outwards so as to make a flap. We then introduce it on the other side and cut out in the same way, #

We then cut off the portions of muscle attached to the bone and apply the saw, cut

not be done. I cover the stump with lint, which I keep wet with moderately cool water, and place it on oil cloth, leaving it there for 5 or 6 hours until excitement arises and all oozing of blood ceases, or even until there is a little lymph effused on the surface.

English surgeons prefer bringing the parts together by interrupted sutures, and then use the water-dressing. They say the fluids all drain out which prevents a collection of and formation of abscess from the blood.

We bring the ligatures from the arteries having removed 1 end. to the nearest surface, and then bring the circular margins together, converting them into lateral flaps, using, to retain them, 4 or 5 interrupted sutures.

Some surgeons object to covering the end of bone with muscle, as they say it will be absorbed. I think it is better to cover with a little muscle though I would not desire a great deal of it.

Having brought together by sutures, we apply adhesive straps between the sutures, then lay a

turn back two leaves.

I have an assistant to draw up the skin of the leg first, then I cut around it with one sweep of the knife. Some cut part of the way around and then change the knife and finish the incision. For making the incision at 1 sweep of the knife, I prefer having the handle short so as to turn freely in the hand. Having made this incision, & the skin pulled up, I can frequently make all the flap I require. If not by drawing up we are obliged to turn up a little cuff of the skin. like the cuff of a sleeve, for a small limb you make a small flap of skin; for a large limb a larger flap.

Having done this we cut through the muscles to the bone. Some perform this operation by making 3 incisions, 1 through the skin, 1 through the superficial muscles, and 1 through the deep muscles retracting the parts after each incision, by which they make a conical stump. But I cut to the bone by 1 incision after the skin is divided, then use the cutting — a scalpel will do as well — through the interosseous space dividing the interosseous muscles and ligament.

turn back 3 pages

through the bone, and tie the arteries.

Having taken up the large arteries we look for the small arteries. It is a curious thing that I have always found a small artery in the centre of the Sciatic nerves. I have always found this bleeding and prefer to pick it up from the nervous filaments and tie it, as I believe if we do not take it up we will always have secondary hemorrhage. We cut off also any prominent portions of tendon that may be seen projecting out.

In all small limbs I prefer the circular incision; in large limbs I prefer the flap operation.

Lectures 66th February 13th 1843

Sometimes following the operation of amputation there is a Shock, which requires that the system should be carefully watched.

If there be spasms, twitchings or pain of the limb such rigors, give Anodyne medicines. Of these the Morphia is a good one, of which ½ or ¼ of a grain may be given.

If the patient be a plethoric, vigorous young man who has taken daily active exercise and lived on light food, he will, after the operation accumulate excitement which you will have to lower by acting on the bowels &c.

All the shocks mentioned in the first part of the Course must be taken into consideration, and the proper remedies administered.

Mortification requiring amputation. I have already given the treatment for mortification.

We have deep seated abscesses over the bones and among the ligaments and tendons, which keep up irritation, produce gangrene and retract it. I have said you should make free deep and free incisions to evacuate it, by which I can assure you that you can often cure gangrene of the extremities without an operation. Often we cannot cure this at all, then comes the question, At what time shall we amputate, or shall we amputate at all?

An old man with gangrene, your

gangrene senilis, in whom there is ossification of the arteries or valves of the heart, I have no doubt the operation of amputation ought not to be performed. It has been performed for this gangrene in old men, but in every case the patients have died after the operation, sooner than if it had not been performed. In all cases where the gangrene has originated spontaneously and voluntarily (from the changes of in old age, it has terminated fatally.

It begins in the lower extremities - I think I have never seen it in the upper - beginning by a gangrenous spot on one of the toes, more frequently in the small toe, which gradually extends up the limb, accompanied frequently with desiccation, but more commonly it is moist and is attended with pain and excitement.

Potts treatment of this consisted in giving opium, and this has been commented by the majority of surgeons. I have failed in checking by the use of opium, but I believe it was from giving it in the liquid form.

It is almost always accompanied with

ossification of the arteries, of valves of the heart, and a gouty diathesis, and there is a great deal of pain and irritation, which requires large doses of Opium to relieve it. It should be given in the solid form as it is most absorbed so soon as the liquid, and has a tonic and anodyne effect, and does not act on the head as the liquid preparations do. The oldest, dryest and hardest Opium is the best. It allays the irritation, restores the secretions and puts the patient to sleep.

By this remedy, with emolient applications to the part, and antiseptics, as charcoal, or if exist the creosote, we can protract the patients life for a great length of time.

He should also take exercises and the fresh air. Do not allow him to walk, but bathing in a chair and place him in a carriage.

Amputations have been performed in these cases, but the patients have all died before the stump (has) healed.

The secretions are changed with old age

and it is only when we meet with patients in which there can be restored, and in which digestion can be performed, so that there is power of reparation and growth in the system, that we can amputate. Only when the patient can digest food and convert it into sound blood, which is not the case in old persons.

The supposition has been entertained that the line of demarkation, a line separating the living from the dead parts must be formed before we amputate. The parts have separated down to the bone and if a sufficient degree of strength remains, this too will be separated by the natural powers. In these cases we have only to divide the parts with a history in the depression already formed.

In the senile gangrene, this is the only operation that can be performed.

Some surgeons say the operation can never be performed before this line is seen, and say that when (this is seen) it can always be performed, but these 2 statements are wrong as there are exceptions to each.

The fact of there being a line of demarcation shows that the system can react and can make an effort to pass off the gangrenous part by a power in itself, but this does not show that it can stand the shock of an operation such as an amputation. The patient may be cold and feeble and sick with nausea, and a weak and frequent pulse. Here if we operate on the grounds of there being a line of demarcation we may kill the patient.

It must be associated with other symptoms. The patient must digest food and the pulse must be in a better condition. You must build up the system and promote suppuration and granulation before you operate.

In all cases in which there is sufficient action, the patient death like, the skin of a cold and clammy feel and of hysterical countenance, with a small pulse, you cannot amputate.

When you have restored the system so that there is a sufficient degree of action, you may operate with a reasonable hope of success. The operation is severe and is very apt to destroy the patient. If

always dread more the operation of amputation for mortification, than any other in surgery.

For is the other axiom, that we must always wait for a line of demarcation, before that is to be followed out.

After extensive wounds & whilst the bones are shattered and penetrate the nerves, vessels, and tendons, and keep up irritation which is rapidly progressing to gangrene and extending up the limb: the limb has not completely lost its vitality, but this state cannot be recovered from. In this case the gangrene is extending, and there is no line of demarcation, yet the operation ought to be performed. I have performed it in 2 cases of this kind and have failed; but the mortification is extending and the patient will die in a few hours. By it we relieve a greater source of irritation than the operation itself is. Although dangerous it is still prudent to make the attempt. Something like 1 out of 4 or 5 have recovered, the operation being performed upon the sound parts above where we make a clean and smooth wound for the

reject one which has caused the gangrene.

Many give stimuli and tonics and high food to patients with mortification, and sometimes to their great injury. After this has progressed for some time the Constitution becomes irritable and the pulse is frequent. By these means they only add fuel to the fire.

We often have to give Nitre and antimony in cases of mortification. We ventilate the room, remove a stone if there be any about only a little fire in the fire place, and apply antiseptics, the best of which are charcoal and Creosote.

The reason why the system sinks in cases of mortification, is not only from the effluvia from the mortified part, but also from absorption into the circulation of morbid matters, the vessels being in contact with the diseased part. There can be no doubt but this part of the humoral pathology is correct.

If the system sinks in cases of mortification the pulse becoming quick, weak & frequent, the skin cold and clammy and the countenance hippocratic, then

you may resort to tonics and stimulating food. This state of the system brought about by the too early use of these articles, the system being brought by them to a state of excitement, called by Brown "indirect debility" which excitement the system is unable to support.

Lecture 67th February 14th 1843

Amputation for Injuries. This is one of the most intricate and important subjects in surgery, and is one with which practitioners are the least acquainted, being treated of very lightly in books.

In speaking of these there can be no rule laid down. I shall therefore consider it best to divide them into classes as they arise.

1st. A wound, which is one of the members, not only terrific in itself, but in which the nerves and blood vessels are destroyed, and the blood and nervous circulation is cut off from the parts below.

In all of this class, in which the circulation of blood and nervous influence are cut off from the parts below, in which there is no sensibility or motion; the patient being insensible when

the part below is pricked, handled or burnt, in which the part is cold and without pulse, there can be no doubt of the necessity of an amputation. To this there can be no dispute only among empirical practitioners.

The only cases in which we vary from this axiom in surgery, is where the temperature and circulation are suspended in the limb, in conjunction with a severe constitutional shock. Then the whole circulation is temporarily suspended, and the whole system cold, and the part may be cold, insensible and numb as the other parts are, and when the other parts recover their warmth and sensibility, this may also.

In these cases there is no difficulty in making a distinction, as the whole system is in the state, in which the limb alone should be in. You may examine the wound and see if it (~~course~~ divides for) any large blood vessels or nerves, and if these be injured. If not the condition of the limb is modified by the condition of the system.

In all severe local wounds of one of

of the members, in which the blood vessels & nerves which are distributed to the parts below are destroyed, there can be no doubt of the propriety of an amputation. The only question is, At what time shall the amputation be performed?

Formerly surgeons waited until the wound inflamed, and suppurated, and till nature had made an effort at cure; now we have given this plan over, and the question now is, Shall we operate while the patient is cold and insensible from the shock sustained by the injury, or after we have restored the pulse and nervous energy and discovered the nature of the injury.

All English surgeons now agree on this point, that where there is necessity for amputation, the limb being dead at the time from the injury done the vessels and nerves, it should be done as soon as possible, even where the system has sustained an overwhelming shock. It has been done where there has been little pulse, a cold skin, with faintness and prostration, yet patients have recovered over and

over again. No additional irritation has been caused by it, no pain, no loss of blood and the patient has awakened up not aware that he has lost his limb, only remembering the first agitation of the accident. He has no pain, no irritation and no additional shock.

Although persons think there is danger from such an operation in such a prostrated state of the system, yet there is not. There is no additional shock, no pain and no loss of blood.

The only difficulty in following this out, is, that once in a while you may stumble on a dead man who never would have recovered under any circumstances. We may operate and the patient may die and we be laughed at by the public who know nothing of these things; but for this we do not care. This is the only difficulty - that you may operate on a dead man.

If you wait until the system has reacted, you will find it in a debilitated state and a state of excitement which is most dangerous to it. Thereby operating you may give to the system another shock

and it will sink back into the condition it was in before.

I know sometimes, where much blood has been lost, and the patient is in this debilitated and prostrated state, that I may say there is no use of the operation. In these cases we may sometimes operate and destroy the patient.

But no matter how prostrated the patient may be, if there has been no great loss of blood, operate on the spot and the patient will go straight on to a delightful & speedy recovery.

Where there is danger in attempting to save the limb and when saved the limb is useless.

Compounds Dislocations & Fractures. These are dangerous, but may not be necessarily fatal. The patient must however in many cases loose the limb. But we may meet with these, which endanger the limb and the Constitution, yet the patient may recover under the situation in which he is placed, and from his previous habits being good.

There are no bad compound fractures.

with extensive laceration of the soft parts which may not possibly be recovered from. But we must consider the patients case fully. There will be inflamation and suppuration with great constitutional disturbance and there would be danger, in attempting to save the limb to the constitution. If he recovers, he will have a useless limb. and perhaps a shattered Constitution.

Considering this, the question is "What shall be done? Shall we sacrifice the limb under the idea that the injury is too extense to be borne, or shall we trust to the powers of the Constitution.

To give rules for these Cases, we will divide them into classes as they occur.

In large joints we have sometimes injuries which are most dangerous. The injury itself, the wound entering the joint is bad, but nothing compared to the exfoliation of these joints. If the joint is exposed, the ligaments torn, the great question is "Can it be closed by the adhesive inflamation or not.

If any of the large joints are exposed by laceration and loss of substance, as not to allow union

by the first intention, the joint will inflame and suppurate. This will produce the most intense irritation and violent Constitutional disturbance. It cannot be circumscribed in the joints as abscesses in the pleura are, by the surrounding barrier of lymph, and the consequence is the whole joint must inflame and suppurate. This takes place not only in the cartilages, but the bones will be perforated, and the capsular ligaments and subcutaneous cellular ~~texture~~ tissue be involved. There is a protracted irritation with which the Constitution sympathizes, producing the most dangerous form of irritative fever. The discharge continuing, the patient sinks, become emaciated and has hectic fever, and dies with colliquative discharges.

The first question is - Can we bring the parts together by the use of bandages, splints, rest and pleasing the mind. If this can be done we may hope to save the limb. but if it has to undergo suppuration and exfoliation of the cartilages and Caries of the bones. the limb will at all events become anchylosed, and in 19 out of 20 cases the patient will sink under it.

In cases of lacerated and ragged edged wounds of the joints, we have to pare away the edges so as to adapt the margins made by our incisions, one to the other, leaving it to unite by the first intention. We have to see if there is integument enough for this purpose by flexing the limb by bandaging &c. If we have pared away the edges, we put them together and keep them in this position.

If the parts be lacerated and badly torn and the bone exposed we may cut away long projections. If we see we cannot get the integuments together and this because we see of the bone. If the malleolus be a cause in wounds of the ancle joint, we saw this off. We cut this away particularly when bruised and denuded of pericosteum. I speak of this because the profession are not aware of it. Even when the bone is sound, remove it if it prevent the coaptation of the margins of the wounds, because if the joint be left exposed it will suppurate. I have removed in cases of compound dislocation, the astragalus, and the malleolus. There will be fibrin thrown out in the place of the bone, which will become ligamentous, and which

yield and allow of motion in the joint.

So in cases of compound fractures. You may remove all prominent surfaces of bone, so as to be able to bring together the soft parts. Use almost every means to effect this, bandages, pleasure of the limbs &c and thereby prevent the exhausting effects of suppuration. By this plan of treatment, you may save the limbs and lives of your patients. Now this rule in Surgery is known, and very few disapprove of it.

Lecture 6th February 15th 1843.

Whenever a terrible injury occurs in one of the extremities, which we cannot close by the adhesive inflamation, the case will progress; there will be long continued suppuration and hectic. Here the dangers are great, but still, taking into consideration the previous habits of the patient, the constitution, and circumstances in which he is placed; if there be good there may not be so much difficulty as would be imagined.

Where I meet with an injury, in which the bone

is communicated and dislocated, I judge in this way. If the whole class of muscles, as the flexors, are torn down to the bone, and there is no possibility of union by adhesive inflamation, I tell the patient that the wound is dangerous to life and limb particularly if he be of feeble constitution and had habits from the difficulty of keeping up the constitutional powers.

In such cases, having stated the facts to persons, they will be satisfied, and the patient if he is capable to judge, will submit

If it be an injury which will certainly produce a useless limb, and which is dangerous to the constitution, and particularly if it be a large joint which is laid open and cannot be closed by the adhesive inflamation, it is hardly possible that the patient can stand the exfoliation and caries of the bone, and a fistulous opening which may remain open for life. This may continue for years confining the patient to bed, and he may after a few years desire the removal of the limb.

The great difficulty in these cases is to decide respecting the time of the amputation, whether we

perform the primary or secondary operation. The question is whether we shall operate immediately, performing the primary operation, or combat the exciting symptoms, and when the part is turned into a chronic ulcer or abscess, perform the operation, called secondary operation. We must either operate immediately, or defer it until the inflammation and fever has subsided, and the part has suppurated and emaciated the constitution, in which case the limb is small and the surface to be cut small compared with the same before this has taken place.

The decision on this point has always been given in favour of the secondary operation and against the primary. They all came to the point that the primary was more dangerous than the secondary operation: that a person young and hale from the operation underwent a shock, and that amputation on a healthy person was more dangerous than on those who were emaciated from the disease. That on a person emaciated the limb was of only small bulk and few muscular fibres were cut and the bone; that the pain was not so great, and the disturbance to the constitution not so

great. Making their estimates they found that more patients died under the primary than died under the secondary operation. One out of 7 died under the primary operation, whereas out of those operated upon who had a long discharge with hectic and sinking, only 1 out of 24 or 25 died. This caused these surgeons to decide against the primary operation. John Hunter tried to save all the patients by the adhesive inflamation in the wound, and when he failed in this, he performed the secondary operation.

Baron Larrey introduced the primary operation into practice, which was attended with success in his hands. His success was attributed by those in favour of the secondary operation, to the great attention paid to Larrey's patients, the beds and linnens allowed them, the stumps being dressed with wine and aromatics. (But Now the surgeons of Great Britain have given in to the primary operation, and civil and military surgery on this point has undergone a compleat revolution.

Now we decides the operation ought to be performed, in a case in which we cannot save the life

and limb, at all events the limb, and that it ought to be performed immediately. The old Surgeons did not understand the true logic of the case; they were two mathematicks in their calculations. They took perhaps 40 persons on whom they performed (the performed) the primary operation out of which 7 or 8 died. They took 40 on whom they performed the secondary operation out of which only 1 or 2 died. Go to their hospitals and you only see perhaps 4 operated on by the secondary out of 1000. You must take in the calculation all the cases that have been wounded. The way is to take an equal number of each. In this way if you take 20 who have extensive wounds of the large joints, laceration of the ligaments & ligament exposing the cavity of the joint, and perform upon them the primary operation, you may lose 3 or 4; but if you wait to perform the secondary operation, you may lose 19 and have only one to prove the success of your operation.

It is now decided that we shall not wait in a case which requires amputation; the great point is to operate with speed. If you wait too long, delaying the operation until local inflamation and fever have

arisen, the time for the performance of it has past. The parts then are more irritable, and the Constitution is more excited. In this Condition of the system with fever and local inflamation you can only operate for a rapidly extending gangrene. This is the only exception to this law, and here we operate with little hope of success, although we substitute a clean wound for a ragged one; yet all this we lose 10 or 11 out of 12.

When inflamation and fever have arisen, you must wait for the secondary operation; wait until you have overcome the irritation and allayed the excitement. At this day many Surgeons wait after an injury requiring amputation, 1 - 2 or 3 days before they operate, and when they have operated, the patient, having local inflamation and fever, has invariably died. There can be no doubt but the proper time for the amputation is before the supervention of inflamation and fever.

The next which I shall speak of are the <u>milder or slighter injuries</u>, <u>which on inspection do not require amputation</u>, <u>and which under favourable circumstances</u>

ought to do well., as ordinary fractures and wounds &c.

We may have injuries, in which the muscles and bones only are hurt, and the blood vessels and nerves of large size are sound. There may be a wound with fracture of the bones to the extent of 2 or 3 inches, and ordinarily by cutting off bony prominences, by bringing the parts together, & splints and rest, we may have the limb a little shorter than the other, though useful. So in wounds of joints we may save limb and life by bringing the parts together, so as to close the cavity of the joint.

In these cases the primary operation is not required.

But it sometimes happens when patients are confined in rooms or hospitals in which there is bad air, or on ship boards, that the ordinary kinds of wounds become unhealthy. They extend & a sloughing or phagedenic ulceration; sometimes to such extent as to destroy the ligaments and bones and cause prostration and hectic fever.

In cases formerly finding these look unhealthy and not disposed to heal, instead of correcting the general health & sending their patients in the pure air, correcting the secretions &c. would cut off the limb. So with ulcers:

whenthere could not be cured they amputated. From the great improvements in this part of surgery we now cure many cases for which formerly the limbs would have been removed.

We now, by attending to the system, tranquilizing the part, by confinement in splints, by elevated posture, and by exercise in carriages, modify the general health, remove the disease and cure the (~~limb~~). local disease

Only in cases in which every kind of treatment has failed which the resources of our profession offer, by restoring the secretions, rest, &c. When we fail with these and the patient is becoming emaciated and sinking, and when there be no organic disease; only in these cases are we justified in operating.

But the cases requiring amputation are very rare. By proper treatment we now succeed in many cases after a few months treatment. Often however it requires 2 or 3 years to overcome chronic diseases in the joints, but it is 3 years well spent. The great danger in operating results from disease showing itself in vital organs. From the operation latent tubercles in the lungs may be developed, which otherwise would have remained latent and gen-

the patient no trouble.

Lecture 6th. February 16/1843.

Sometimes the great difficulty in curing these cases, lies in the defective state of the constitution, there being perhaps in the lungs or liver tubercles, or some disease of the pancreas or spleen, or tubercles on the peritoneum, which are in a dormant or latent state, and when they do assume these suppurate and the patient dies of phthisis.

Sometimes the case from the great discharge and irritation, produces emaciation and heate; the patient has a red and glazed tongue and colliquative discharges.

If these cases if no vital organ be diseased the cause of irritation may be removed, when the hectical symptoms will immediately cease. The patient will experience but little shock, and will sleep soundly after it. He will increase in strength and health and will be finally a sound man.

The reason why persons with heate from these

cause recovery after the removal of it, is that the wound is not so great a source of irritation as the disease was.

In regard to Chronic Inflamation of the Joints, it is not necessary to say a great deal. This may arise from a bruise, sprains, from vaination of temperature, and what what is called repelled Gonorrhea, or from Scrofula.

In almost all cases of chronic inflamation of the joints the patient will recover by the use of splints to keep the parts quiet, rest, low diet, purgatives, alteratives and sudorifics.

When we fail by ordinary means, and the inflamation continues for a long time, there is a thickening of the tendons or ligaments.

By counter irritation, iodine ointment, moxa, applying hot iron near the part, so we may excite absorption of the interstitial deposite in these parts.

Foreign bodies in the Joints. Sometimes we meet with these concretions in the joints which are foreign bodies

and are occasionally intercepted between the parts in the joints, when the patient experiences a sharp sensation and falls down; they are met with most frequently in the knee joint, and may sometimes be confined externally where they may be felt. They are the result of chronic inflamation.

Where they cannot be confined externally they must be cut out. All that must be done is to cut them out by making a valvular or oblique opening, which should be closed by the adhesive inflamation. Do not introduce forceps or other instruments to grasp the foreign, as you will irritate the synovial membrane.

When it is removed dress the part with dry lint and adhesive plaster and keep it at rest.

Sometimes we meet with <u>small concretions</u> in the sheath of the tendons or vaginal bursae, about the fingers or toes. Sometimes we have them about the wrist, and sometimes they are long and often seen in blacksmiths or washerwomen and may be felt under the skin. They gives a sense of crushing or cracking under the fingers.

If we leave out the contents we find a concrete substance, floating in a liquid like albumen.

These should be treated as we treat those in the joints. A valvular opening may be made and by compression all may be got out that can be. Undue pressure should not be made. The incision should then be closed and the part kept at rest.

If the substance return, the operation may be repeated and laxatives given, camphorated mucuroid ointment applied over the part or iodine ointment.

Club-Foot. The practice of operating on children born with a slight deformity cannot be too severely censured, the deforming arising many times from want of action in 1 muscle only. Some practitioners have operated in cases of paralysis of the whole limb.

The deformity in infants may almost always be cured without an operation, not more than 1 case out of 60 requiring it. I have always succeeded in restoring muscular contraction by stimulating applications to the part, by attention to general health, send-

ding them to the sea shore, and by the use of a spring in cases where the deformity arises from a contraction in any muscle.

When we cannot succeed by these means the tendons may be cut. I have cut the tendo achilles, that of the Anterior and posterior tibial Muscles, and the plantar fascia. They are cut by inserting a small bistoury through the integument, carrying it between the bone and tendon and cutting inwards. When the tendon is cut there is a sense of crushing, and when completely cut the part gives way to force exerted upon them. The space is filled up by a substance which admits of a great deal of motion. If we do not succeed in restoring the part by the first incision the same tendons may be divided again.

For the purpose of maintaining the foot with extension which we wish it in, I prefer those fastened to a splint with a joint. It may be placed obliquely if necessary.

Fractures and Dislocations. These are so fully described, and so many engravings given of positions, splints &c in all the common home books of surgery particularly in that of Sir Astley Cooper's, that I need not detain you with a full explanation of them. I would advise you all to read Sir Astley Coopes work on Dislocations.

There are a few circumstances worthy of notice in the treatment of dislocations which I will speak of.

First, the method of overcoming Muscular Contraction, on which all the books are deficient. If you read some works you would think all that was necessary was to bleed the patient ad deliquium animi (to faintness which would overcome it.)

Some recommend nauseating doses of Antimony but in this there is a great deal of uncertainty.

By bleeding (to fainting) (this) weak persons (they) are often thrown into spasms, sometimes like tetanic convulsions, and many times into a dangerous state, for

the irritation produced may well not have. The practice employed indiscriminately is dangerous, and from patients have lost their lives. Emetics too (which have been employed) are injurious in such cases.

In these (cases) anodynes will produce the effect we desire. They will (overcome the system) allay (this) fear, and overcome the spasmodic contraction of the muscles.

If you have rigid contraction in a patient who has had a dislocation & he have taken a full meal you may then give an emetic, when & extension and counter extension you will overcome it.

In persons of a strong and full habit in whom the dislocation has existed for some time, then bleeding may be resorted to to fainting with little danger. The patient should be bled in the upright posture and the blood taken away rapidly, either from a large orifice or from several veins at the same time. When we have induced fainting, we reduce the dislocation and lay the head low to favour the afflux of blood to it.

Sometimes, in extreme cases, in which there is pain and irritation, the tobacco injection may be safely used. This remedy may be used by the mouth, chewing or smoking it, in which way it is not so dangerous, no one dying from its effects when used as a tincture; but in extreme cases you may give it by injection. This remedy is particularly applicable in dislocations of the large joints in which we have failed in effecting a reduction after the use of other remedies.

Extension & Counter Extension. This is made by the use of pulleys & hooks. The close fitted is made to the extremity of the arm or ancle - in dislocations above, by means of a broad bandage fastened around there, to which the hook of the pulley is applied. The hook of the opposite pulley is held by an assistant or fastened to a staple, in the wall or floor in the room. It is better to fasten it to the wall, as it should be unyielding & immovable. The patient is kept immovable if it be a dislocation of the hip or knee by a bandage passed between the thighs over the

by

perineum or fastened to some other immovable point. For dislocations of the joint the clove hitch may be fastened at the ancle or above the knee. If we wish to rotate the limb, it is better applied above the knee, as we then have a lever power in the leg. If not it may be applied at the ancle.

In applying the clove hitch, we first put a piece of buckskin, or what is better untanned sheep skin, over the part, then put the bandage around twice tieing the knot, which (should will) not slip.

Lecture 10th February 17th 1813

There must always be one force in reducing dislocations in fractures, to retain the body or joint in a fixed position, called counter-extending, and another which is moveable called the extending force.

It is not necessary in attempts at reduction to always have pulleys. They are seldom required only in old dislocations, particularly of the hip, and shoulder. You may have 3 or 4 men of moderate strength to make the extending force, they should pull slowly & gradually

in the proper direction. If they jerk or pull irregularly the muscles will refuse to yield and be thrown into spasms. But if slowly the contraction can be overcome. In reducing fractures, I have never found the pulleys necessary, neither do I believe they ever are.

Fracture & Dislocation of the Clavicle. One of the first things in reducing this dislocation is to make a lever of the first class. If we meet with a fracture or dislocation of the clavicle, with the ends of the bones over each other, by laying a pad in the axilla and pressing upon the humerus, you may restore the bones to their places. You can often reduce fractures in which the ends of the bones lap over each other, and dislocations in this way when it cannot be done by pulling at the humerus.

When the parts are restored, to retain them in their place, apply a large pad under the arm and tie the arm down to the side. A bandage. It should also be passed under the axilla and over the opposite shoulder to keep the shoulder up.

Dislocation of the Humerus. In these dislocations you must pay attention to the muscles, observing which are thrown out of place, which are contracting and which are relaxed. In dislocation downwards we have the Deltoid muscle contracting. If we attempt reduction while keeping the arm down upon the side you will not succeed. You may pull until the muscle is irritated and inflamed and you will not succeed.

In reducing this you must elevate the arm so as to relax the Deltoid Muscle, when the dislocation may be reduced.

So in fractures of the neck of the Humerus- we call all that part the neck, between the insertion of the Deltoid and the head of the bone in surgery - to replace the ends of the bones, you must elevate the arm.

The arm must be kept elevated or else the bones will be displaced after replacement. If the patient lie down the arm should be tied up to the bed post for at least 3 or 4 days, until lymph is thrown out to produce adhesion, after which a cushion may be placed under the arm.

You must always hold in view the relaxation of the muscles in reducing dislocations, as well as the necessary force. (You must relax those which are extended, and act for those which are relaxed.)

Elbow Joint. If you have a dislocation or injury of this joint in which the triceps muscle on the back of the arm is elongated, you must straighten the arm to relase this muscle.

If the biceps and brachial's muscles are contracted, which is the case in dislocations backwards and are impediments to reduction, we must bend the arm and apply the proper extending and counter extending forces.

Counter Extension on the Superior Extremities. Many surgeons err in making counter extension on the superior extremities, in loosing the bandage under the arm, and fastening to a bed post or some other fixed point.

When we make force upon the arm for dislocations in these parts, there is a great difficulty

to reduction, from the rotation of the scapula, which by the bandage under the arm is not fixed. You must fasten in these dislocations, the scapula, the acromion and the clavicle. I fasten the scapula by a bandage around the chest and over this bone, and fasten the acromion by holding it by the hand. Or instead of holding the acromion you may apply the scapular bandage as before, and another over the shoulder and around under the opposite axilla.

Dislocations of the Hip Joint. This is the most important and difficult dislocations which are met with, on account of the great strength of the muscles, of the cotyloid ligament, and the great irregularity of the bones of the pelvis. They are so difficult, that until within 60 years surgeons did not believe in the possibility of dislocations of this joint.

It is now ascertained that there are 4 leading varieties of dislocations of this joint.

The first and most common is dislocation backwards and upwards on the dorsum of the ilium, the bone slipping out of the acetabulum, and the round ligament being torn. There is a shortening of the limb and atten

over the ilium. From the situation of the muscles — the pectineus &c the trochanter major is turned down on the bone the foot inwards, and the leg is immovable. The toes are turned in, the limb is stiff and the leg is 3 or 4 inches shorter than the other.

From these characters, the shortening of the limb, the toes turned in, and the stiff limb, this cannot be mistaken.

To reduce this I place the patient on the back, and have the counter extending bandage passed around the perineum. For the extending bandage I prefer placing the clove hitch above the knee, when, by inclining the leg backwards I have the advantage of it in relaxing any of the muscles which require it by rotating the limb. Me let 3 or 4 assistants make the extension slowly, when you can feel it give way and move along, and finally when it enters the cavity you will hear a snap.

The patient should, after reduction be kept still for a few days to avoid inflamation and insure adhesion of the ligaments.

If a few days have elapsed after the dis-

location, when the bone is replaced, you will not hear this snap, which makes the only difference. Sometimes the patient himself is not aware that it is reduced.

When reduced we see that it is of the natural shapes of the natural length and the trochanter in the right place.

The next in frequency is the Dislocation downwards and forwards; the head of the bone lying over the foramen thyroideum.

In this dislocation we always have the limb longer than the other, sometimes 1½ sometimes 2 or 3 inches, and the limb is thrown forwards and the toes point downwards. It is as if the patient was standing with the limb forwards, which is stiff.

It must be reduced by forces in different directions. The Canton extending bandage must be applied across the pelvis, over the spine of the ilium and fastened to some fixed point. Then an assistant must pull the thigh outwards while the surgeon makes rotation with the leg.

The next dislocation in frequency quoted by Astley Cooper is backwards over the ischiatic notch, but according to my experience that upwards and over the pubis is as frequent if not more so.

Dislocation upwards. In this dislocation the bone is upwards from the cavity and the head of it lies over the crus of the pubis. It comes up sometimes under Poupart's ligament

The bone may be felt over the os pubis, there is shortening of the limb and the trochanter is set out turned inwards.

In reducing this dislocation the extending force is made by pulleys which I prefer, downwards and backwards. At the same time the surgeon pulls the limb outwards as he stands at the side of the patient, by means of a bandage passed around his neck. With the hands the limb is held and when required rotated.

Dislocation backwards in the Ischiatic Notch. This is the most difficult to detect of all the dislocations of the joint, the limb being but little altered in position

or length.

The limb is generally a little shorter, sometimes only ½ inch, but averages about 1 inch, the trochanter major is not so obscure, and the limb is turned a little inwards, the top of the great toe pointing to the opposite. The difference being slight making great difficulty in detecting this dislocation, hundreds have been neglected and left with an unreduced dislocation, from the situation of which they are incapable of taking active exercise.

To reduce this dislocation the patient must be turned on his side, with the dislocated hip upwards. We have the Counter extending force acting backwards and upwards, and make the extending force by pulling downwards and forwards.

Diagnosis of Diseases of Hip Joint. There is a great deal of difficulty in distinguishing diseases about the hip joint & dislocations from each other and from fractures &c. The pelvis being a movable part, rotating

on the body makes the diagnosis difficult.

From abscess about these parts we may have the limb lengthened, the muscles of the abdomen & back yielding, and allowing of drooping of one side of the pelvis. If in these cases you draw a line from one sup. anterior spinous process to the other, you will find that it is not transverse with the body, one side being drawn up and the other drooped down. If another line from these points to the leg, you will find the length the same.

And vice versa, - from inflamation we may have contraction and spasm of the muscles of one side, in which case the pelvis will be drawn up on that side.

We may have one side drawn up while the inflamation exists, and when suppuration takes place the same side may droop, and the opposite stand highest.

Thus we have both of these states after injuries of these parts, viz while the inflamation exists, contraction & and drooping of the same side. If the muscles be irritated too, and thrown into contraction, the side will be drawn up.

In this way we may have a Condition of

things, which as the patient lies in bed, would lead a person to think there was a dislocation. But if you measure from the pelvis you will find there is only a relative alteration. If you find the limb the same length, you know there is no dislocation or fracture.

If there be an absolute shortening of the limb, you will detect it by measuring from the Anterior superior spinous process of the ilium, and from the pubis to the trochanter major. And also measure from the posterior spinous process to the trochanter.

If you find an absolute shortening, and that it arise from a tuning of the pelvis from contraction of the muscles, treat by antiphlogistics. - Leeps, leeches, rest low diet, purgatives &c.

Fracture of the Neck of the Femur. Fractures of the neck of this bone are more frequent than dislocations, and are liable to great perplexity in distinguishing them; but I think there will not be much difficulty if care be taken in the examination.

Fractures of the neck of the femur occur almost exclusively in old people, only 2 cases of it being recorded in young persons. In young persons the fractures occur through or below the trochanters.

These may be distinguished by the ease with which the limb is moved, it being forced in dislocations. We distinguish it by rotating the limb. If it be a dislocation you find the trochanter rotate in the arc of a circle, if it can be rotated at all; if a fracture it will be found that the bone will rotate on its own axis, unless the fracture be very high up. This is the first point in making the examination to which you should direct your attention.

Next, if it be a fracture, you can not only move the limb, but you can always pull it down to the natural length, and when down you can always produce crepitation. You may fail of producing crepitation if the limb be not pulled down so as to coaptate the ends of the bones; but when this is done I have never failed in producing crepitation if I rotate the limb and press upon the trochanter. It is so distinct in

many cases, as to be heard in an opposite corner of the room.

Having these signs, and then taking into consideration, that in persons over 55 the fracture is almost always in the neck of the bone, which becomes changed by age, we can generally distinguish them.

We must recollect the how the injury occured. Dislocation of this bone cannot take place from slight injuries; it must be violent as a fall from some height, or from a horse, whereas slight falls may produce fracture of the bone. A old man may trip his toe in a crack in the floor, or fall out of bed, and have a fracture. I almost always have my mind made up, after being told how the accident occured, before I make an examination. But from this, and noting the limb so as to produce reputation we have positive signs.

It is important to distinguish if the fracture be in the joint, or capsular ligament. In the one the fracture may heal in 5 or 6 weeks as ordinary fractures do, whereas if the fracture be in the capsular ligament, it cannot be healed by ossific matter. The union will be by a ligamentous matter only, and the patient will be

lame, and incapacitated for active exercise for life.

In young persons, those below the age of senility, the fracture is almost always outside of the capsular ligament, whereas in old age it is almost always in the capsular ligament. In old persons therefore with fracture, you cannot promise a cure. They may hobble about after sometime with a crutch, and high soled shoe, but they never will completely recover.

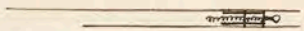
We lay it down now as a rule, that in fractures of the bone within the capsular ligament, we cannot effect a cure. The only thing we do is to prevent shortening of the limb, by proper extension and counter extension which should be kept up for about 2 weeks, and the patient kept on a mattrass. After about a month we should let the patient get up and walk about, as after this time motion aids the union of the bones. It is not worth while to torture your patient, by tight bandages and long confinement in these fractures, as by this you will injure the general health.

Sometimes we have only Contusions of these parts

unattended with dislocation or fracture. We tell this by the measurements, from the process of the pelvis to the trochanter.

In these cases we keep the patient at rest, and use evaporating lotions, cups, leeches, or emollient fomentations as the case may require. If the patient of a plethoric and full habit, bleed and use evaporating lotions until the inflamation is subdued. If the patient be cold, warm applications may be the best. As splint is seldom required, though if necessary it may be used.

Fracture of the Shaft of the Femur. Surgeons have varied in the fractures in using in all cases the same apparatus. The French used the straight apparatus having a long splint to extend up to the chest on the outside, and a short one to the perineum on the inside. The inside one



is curved and has a pad to the end to lie easy in the perineum. The extending force is applied by means of a screw power, the close fitted bag being made around the ankle. Some have used weights, but the

amount of extension made by these is very uncertain. Very moderate extension only is required, as this should be made gradually, drawing the limb down a little visit after visit, by which means it will yield. If the extension be made at once the muscles will be irritated and will not yield. These splints should have leather as in Hobbes apparatus for the leg to rest upon.

Before fitting this apparatus the limb should have a few pieces of pasteboard applied, well moistened so as to adapt themselves to the shape of the thigh. The one behind should be well fitted to the concave part of the thigh or else the limb will give a If it does not fit so as to preserve the limb in the right position, a pad should be applied under it. This should be applied and light lateral pressure made by a few turns of the bandage.

The screw power in the straight apparatus is not necessary. A piece may be nailed across the splints below; or a few strips of bandage used to make the extension, tieing them around the strip of board.

By these means I have cured a great many cases

of simple and compound fractures, without any shortening or deformity of the limb.

I confess I have failed in curing fractures with this apparatus, when they are high up on the bone. In these cases the weight is taken off and the muscle, when the limb is otherwise, pick up the bone towards the face of the patient, and the lower fragment will be drawn up behind. In fractures high up, I dispense with this apparatus, and use an inclined plane, leaving the leg to lean upon it. By this we raise the lower fragment to the angle to which the psoas and iliacus muscles pick up the upper. You cannot force the muscles the bones this bone down; you must coax them to yield.

Some use boards on which the leg rests, which should run from the back of the knee to the tuberosity of the ischium, so as to prevent the thigh bone and pelvis from being above the bed, on which they should rest.

In my practice I prefer a lateral frame work to the limb, or a tin plate made concave for the parts to

rest on. These may be used and placed over the board work at the angle required.

In using the board plane, the patient must be confined on his back without moving the limb, by which there is danger of ulceration and mortification of the parts pressed upon. In the use of the lateral splints the patient may turn over when necessary.

An apparatus has been invented by which the patient can screw up the double plaster to any angle convenient, the patient finding more ease than on the others. This apparatus is expensive, and is not so good for fractures of the thigh as the lateral splints. It is better than these splints and I prefer it for fractures of the leg.

Dr Bohen of Ohio has invented an apparatus which does for fractures of the leg, but will not for fractures of the thigh as the limb cannot be moved.

Fractures of the Leg & Ankle. The great difficulty is the management of the fractures, so that the parts downwards and the heel retracts from contraction of the Gastrocnemius muscle. If the patient be placed on

the back in these cases, with the limb straight, this cannot be overcome. You must flex the leg and relase the Gastrocnemius Muscle. By doing this, you may reduce (may) dislocations and fractures, which without it you could not (reduce) succeed

Fracture of the Humerus. In fractures of the upper part of this bone, if the Deltoid sticks up the upper fragment, you must keep the arm up.

When you (have) apply splints, (as anterior, posterior and an external, which should reach up to the acromion) I would recommend you to keep the arm up by means of something tied to the bed post. for a few days until lymph is effused and the parts agglutinated.

Fractures about the Elbow Joint. I am not satisfied that it is best to adopt any one rule in the management of these fractures, but place the limb in any position which keeps the parts in (contact) apposition

Condyles In fractures of the condyles, the limb should not be kept straight. By this the olecranon will

be forced – the olecranon comes and force apart the condyles. The arm should be bent a little – nearly straight and kept in this position when at rest; but slow and cautious motion should be made to prevent anchylosis. I prefer before making motion, to have all the inflammation about the joint overcome, after which by motion there is no danger of exciting it. After 3 or 4 weeks the patient may carry the arm in a sling.

Fractures of the fore-arm. I prefer compresses in these fractures one in front and 1 behind to keep the bones apart, as they are liable to be pressed in upon each other. We should also take care to have the splints wide enough – an anterior & posterior – to prevent lateral pressure by the bandage. They should be at least ½ or ¾ of an inch beyond the arm, and should extend from the elbow below the fingers. The splints should make equal pressure along the arm, for which purpose a compress should be laid in the palm of the hand and 1 above the wrist.

You should never apply a bandage over the forearm in cases of fracture, below the splint — by it we make lateral pressure. It should only be applied over the fingers and extend to the wrist.

The arm should be kept with a sling applied to it for a few days, as the paste board while wet, will yield and allow motion. It should be kept two in a sling across the body.

When the fracture is low down on the forearm, a splint should be applied to the heart and the arm kept against it, to prevent it from turning in.

Lecture, 22nd February 21st. 1843.

Diseases of the Eye. Inflamation of the Conjunctiva. I need not speak at length of this as it presents the common characters of inflamation only, as is soon overcome by the common antiphlogistic remedies, bleeding, purging and evap-

rating lotions.

Purulent Opthalmia. There is inflamation with an intense dry sensation, heat and smarting; the lids of the eye swell and become oedematous, they supporate, the cavity of the eyelids becomes closed, and it is converted into an abscess. When the lids are opened the matter bursts out to the amount perhaps of half an ounce.

Purulent opthalmia occurs from various causes, and under various circumstances. When in infants it is called the purulent Opthalmia of new born infants. This is supposed to arise from diseases with which the mother is afflicted as Gonorhea &c. It does arise from Gonorhea in some cases, and when from this cause, until within a few years infants almost always lost their eye sight. But it is not owing to only cause. Exposure to the light and to air of the eyes of the infant sometimes gives rise to it. When from these causes and unattended with any virus, it is more easily

managed that when owing to any specific disease, as it will then run on to a chronic state, with a thickened condition of the membrane.

The purulent opthalmia in infants differs from others in not allowing of blood letting. Even the application of a leech, as I have known it, with the loss of a very small quantity of blood may destroy life. But depletion in this is seldom required. Evaporating lotions and small doses of oil, and anointing the eye with a solution of 1 one of the chlorides, 8 or 10 drops in a half tea cup full of water, and after the lids have been washed, the use of a solution of the nitrate of silver, 2 grains to ℥i of water, is all that is required. If you use this, you will immediately check suppuration and save the eye.

Sometimes the lids become studded with granules or warts, which are sometimes long and pendulous. When this is the case, you must open the eye and evert the lids and cut away these warts. You must scarify the lids too by drawing a lancet across them, and allow them to bleed, by which

you take off the irritation. You should then touch the inside with a solution of the nitrate of silver, or with a piece of paper which has been wet and touched with the solid caustic. The caustic acts as a sedative; it allays irritation, prevents suppuration and opacity of the cornea.

A great many surgeons (have) preferred (other styptics, as alum, Sulphate of Zinc, Sulphate of Copper &c. which are sometimes useful.

Purulent Opthalmia of Adults. This occurs in the same way as that of infants; frequently from sudden variations of temperature producing a catarrh of the eye.

In addition to general depletion and diaphoretics, the same remedies will relieve this opthalmia.

This opthalmia which occurred in Egypt, called Egyptian Opthalmia, to the English and French Armies, and which destroyed many of their soldiers and officers, was attributed by some to the reflection of light from the sandy soil, and by others to the

marshes in that country. It was also considered contagious, and is now generally admitted to have been such, many patients being carried to England where it extended to many places around. It was considered incurable, but 10 patients being placed in the hands of all recovered. He found the internal membrane thickened and studded with tubercles, which kept up the irritation, these ~~which~~ be removed, and it ~~which~~ gave rise to a great revolution in modern surgery.

In the purulent opthalmia of adults, in which the membrane is thickened from the long standing of the disease, the eye irritable and tender to the light, always looks inside the lids. If they are thickened vascular and nasty, treat them by excision, and then touch the surface with caustic.

Strumous Opthalmia. This is the most frequent form which is met with in our country, and is seen in scrofulous persons. There is a weak and irritable eye, upon exposure to light, which is based upon a scrofulous ten-

permanent.— a thick lip, a flat nose, large eyes and a foul breath. If in a child and you attempt to examine the eye you will find it turn off and hide its head perhaps in the mothers lap. Upon an examination you will find the inner membrane thickened and red, and you will almost always find ulcers on the lid, but more frequently on the Cornea. The ulcer is transparent, which distinguishes this from other forms, and when we produce opacity ~~you have~~ there is a tendency in it to heal.

Depletion in this opthalmia is ~~your~~ virtues. You should give small doses of Calomel and Rhei every evening and repeat for 3 or 4 evenings, and then small doses of some Cathartic without the Calomel, you may then give every morning small doses of Senna & Manna or of the Tincture of Aloes. You should also have the skin sponged every day with salt and water and rubbed until dry with a towel. The patient should be kept on easily digestable and easily digested foods, and he allowed to be in the open air. When you have restored the general health, you may allow animal food, and use a

solution of Caustic to the eye, which will produce opacity of the ulcers and a tendency to heal. If the surface be large, I use a strong solution, 8 or 10 grs. to the ounce. If ulcers, I touch them with a strong solution, by means of a Camel's hair pencil.

Tonics, other remedies there are required, when I prefer an emetic of Ipecacuanha, after which the eyes will do well.

Opacity of the Cornea. After opthalmia the cornea is apt to be opaque. If this arise from an ulcer, the opacity is generally irremediable; but if it be from this, and not over the pupil, it will do no injury. When over the pupil so as to obstruct vision we perform the operation of making an artificial pupil. All that opacity that depends on an effusion in the Cornea, can be dispersed.

To disperse this I use a weak solution

of Caustic as long as the eye is irritable. I then use a solution of the Bichloride of Mercury, 1 grain to 1/2 pint of Water which should be dropped in the eye. Sometimes I use a solution of 1/2 of a grain to the ounce of water, but never more. Another remedy which answers very well is 1 grain of Sulphate of Copper in 1 ounce of Camphor water, made by rubbing Camphor and Magnesia in water. This should be dropped in the eye; it is an admirable remedy, relieving irritation sometimes when the Caustic fails

As regards the use of Ointments, I never use them only when the lids adhere together in the morning. The one most generally used, is a weak ointment of the red oxide of Mercury, made by rubbing down finely 10 grains of the Oxide in a mortar, and mixing it with 1 ounce of Lard or Simple Cerate. This is used at night when the lids adhere, while in the same eye I use the other remedies in the morning.

In any inflamation of the eye when there is a great deal of heat and irritation, emollients may

burned. Powdered Whiting Lime, made into a paste by dropping water on it, may be laid over the eye; or a decoction of it may be used which should be dropped into the eye. This is a very good remedy, as also the decoction of Sassafras pith. But the best kind of application to be dropped into the eye, is the serum of the white of eggs it contains the purest kind of albumen. After using Caustic to the eye in a irritable state, I almost always use this remedy.

Rheumatic Opthalmia. This is not superficial as the others are; it is deep seated. It seems sometimes with rheumatism either acute or chronic, and sometimes it precedes it; but more generally it is seen with rheumatism, and known by the company it keeps.

There is no redness of the eye externally and no sense of smarting. There is a deep seated and obtuse pain, sometimes described as if in the bones. If you look at the eye you will see deep-

heated vessels running in the Ischarotic coat, below the conjunctiva. If you look into the eye you will see the humours are affected. becomy opaque; the iris too becomes effected; it Contracts making the pupil small, and becomes changed in Colour to a greenish or red, and adhenes to the Capsule of the lens. If allowed to go on the cornea becomes affected and vessels may be seen shooting into it.

This form of opthalmia if allowed to go on, is more dangerous than any of the other forms it requires Careful watching to prevent the Contraction and adhesion of the iris, and disease of the humours. To overcome it you should employ active depletion and pills of Calomel and Antimony to produce nausea and active purgation. The bleeding should be carried to fainting and when the patient recovers, cup or leeches should be applied to the head. The pills should be pushed to ptyalism which increases the activity of the disease greatly; indeed no one should attempt to cure this form of opthalmia without administering Mercury to ptyalism.

By this active treatment we overcome the inflamation, check the deposites of lymph, increase the action of the lymphatics and promote absorption of that which is already effused. This treatment has always checked the inflamation in my hands, and has effected cures if the patients be careful not to expose themselves to sudden variations of temperature, and to light &c &c.

Whenever you see a <u>contracted state</u> of <u>the pupil</u> you should resort to the Stramonium or Belladona, instedd of using astringent and styptic Colayria. One grain of the extract should be dissolved in one ounce of water, and 3 or 4 drops of this dropped into the eye every 3 or 4 hours.

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Lecture, 3rd February 22nd 1843

Inflamation of the <u>Retina</u> In this the inflamation is situated still deeper then in any of the other forms

It is seated in the ramifications of the Arteria Centralis retinae, which runs in the Centre of the optic nerve, and sends its branches to the retina and posterior capsule of the lens.

The patient have ocular Spectra - flashings of light or balls of fire in the eye. Sometimes it is attended (sometimes) with a diseased sensation in the brain and sometimes this amounts to delirium. There is no great pain experienced by the patient, but the eye enlarges, and if the inflamation be not speedily subdued, it produces a pulpy state of the retina with loss of sight.

If you look at the eye, you will see it tense and full from an increase of all the humours. There may be (the) opacity of the back of the lens but the eye will be transparent back of the lens.

It is curious, but this inflamation may occur without any pain being complained of, there may only ocular spectra, flashes of light or balls of fire before the eye.

If not overcome this inflamation will destroy the sight. Even when we do overcome it, we have left

functional derangement of the nerve, or Amaurosis.

Amaurosis. Of this we have a great many varieties from defect of the Optic nerve. These varieties cannot be classed (under) under (any) heads, but may be divided into 2 classes. Functional and Organic Amaurosis.

Functional Amaurosis. (Where no functional disease or its in the eye, we call the blindness, functional Amaurosis.)

This is often seen unattended with any change in the colour or condition of the iris; no alteration in the condition of the pupil as to size, it being immovable only in most cases from insensibility to the action of light. If you look at the Cornea, Sclerotica and Conjunctiva you will find all right. If you look deep in the eye, you will find all transparent; no duskiness, no greenish colour or no opacity. If at the table you will find

it as plump as natural. If at the brain, you will see no manifestations of disease there.

These cases of functional Amaurosis are almost always curable, but all the opposite - those of Organic disease - are incurable.

If there is functional disease, look not to the eye, but to the general system, and ascertain the condition of all parts of the body, in disease of which the eye might sympathise.

We often find the disorder in the primae viae; we see disease of the liver; the appetite is variable and unnatural; the stomach is out of order there being acid eructations and foulness about the mouth; the evacuations are foul: of an unnatural odour and colour. In fact we sometimes find all the symptoms of disease of the general health.

In these cases in a great number of instances, by allowing only digestible food, and diligently using alteratives and laxatives, so as to cure the functional disease, we can cure the Amaurosis.

If it be of very long standing we may not,

but if not of very long standing and still progressing, and particularly if it is confined to one eye, we may cure it, by alteratives, outdoor exercise, the use of a flesh brush, warm clothing &c.

In many cases the Skin is dry and husky or is covered with an herpetic or other eruption.

In these cases we must not only correct the primary vice, but we must act on the skin. For this use, in conjunction with the remedies above, diaphoretics; small doses of Ipecacuanha, Sudorific teas and the vapour bath. In severe cases I use the vapour bath and friction over the skin. If it be in a cold climate from the great variation of temperature, I prefer sending patients to a warm climate.

In cases where hepatic disease is manifest, I resort to baths of Nitro muriatic acid; having the water acidulated with it I sponge the surface over. I give it also ~~in 3i doses~~ internally.

In some cases the unequal determination of blood is a cause, the eye being loaded while the extremities and skin are cold.

In these cases depletion by the lancet will not effect a cure, neither will cups and leeches to these parts alone. After using cups, and sinapisms to the extremities to produce a flow of blood there, I prefer emetics, giving in some patients 1 or 2 a day, in others only 2 or 3 a week. Often by the use of these, from the shock they give to the system, and from their power of equalizing the circulation, I have checked the progress of amaurosis.

Sometimes the diseased secretion and exhalation are a cause of amaurosis. We see it sometimes in females with Menorrhagia, the amaurosis being merely nervous.

We then use cups over the spine, and astringent injections as directed in books.

Sometimes an abundant secretion of urine, amounting

in some cases, to a gallon a day, will cause amaurosis.

We then use counter irritation over the kidneys and (~~creates~~) equalize (~~of~~) the circulation; and by lime-water & chalybeate tonics we relieve the general irritation and remove the amaurosis.

In some cases a determination of blood to the eye, has produced an increased exhalation of the humours of the eye; the ball is distended and we have produced sometimes an enlargement of the cornea, and sometimes of the whole ball.

After removing in this case, all derangements of the general health from which the eye might be sympathetically affected, if there be no relief we presume this keeps up the blindness. Almost all remedies it seems have failed in producing absorption of this excess, I have tried calomel, diuretics &c without any effect. By the use of the elaterium as a hydragogue cathartic I have sometimes overcome it however; but I prefer tapping the eye in conjunction with this remedy.

The eye may be tapped every 2 or 3 weeks by a small oblique opening with a lancet. If the enlargement be in the Cornea the opening should be made through this. If in the ball of the eye with bulging out of the sclerotica, it should be made behind the iris: and the water of the vitreous humour be let out by the opening made in the cells. Between these operations the cannula should be used as a hydragogue cathartic.

Electricity, tonics, friction with a salt towel, may all be used after you have assisted the general health, and particularly after you have tapped the eye. These may all come in useful after this has been done and the reason persons have failed in the use of them is because they have been given too soon. If used in the first stage they are injurious.

Organic Amaurosis. When the organic disease is an affection of the coats of the eye, you have not only an enlargement, but an unequal enlargement called Staffiloma. The sclerotica sticks up either by softening or absorption, the conjunctiva yields, and you have

a bulging out of the humours, the colour of which looks bluish.

When you see this the disease is almost always incurable, being accompanied with other organic disease in the internally structures of the eye. The iris you will find loses its natural colour, and looks pale or yellow or blue, and is soft and irregularly dilated. Sometimes the pupil is oval or elliptical, often to one side and insensible to the action of light - immovable.

If you look at the humours of the eye, instead of finding them transparent, you will find them of a greenish or bluish colour, called Glaucoma. Some call opacity of the back of the lens Glaucoma, but I think in Glaucoma, all are affected, the retina being thickened and opaque. It is no difference whether it be opacity of the back of the lens or not, no operation can be performed for the cure.

In addition to this appearance the external vessels of the Conjunctiva are affected; they are enlarged and of a darker hue.

Whenever you see these appearances, an

irregularly dilated and immovable pupil and Glaucoma behind, a tumour sticking out from the eye, and a varicose state of the external vessels, you may be sure it is an organic and totally incurable amaurosis.

When the eye protrudes from the cavity, Exophthalmia, we sometimes have amaurosis. It may be owing to tumours in the back part of the orbit or exostoses, which increase in size and force the eye out. I have seen this protrude when the eye sight was good; but if it protrude and there be amaurosis, it is owing to disease of the nerve and is incurable.

Fungus of the Ball of the Eye. In the commencement of this disease, if you look in the ball of the eye, you will see the retina like a sheet of gold, silver or brass highly polished. If you watch it from day to day, you will see this protrude forwards, becoming from a concave, flat and then convexes. It finally gives way and there shoots through the opening a large fungus looking tumour, from which there is a weeping of blood.

When you see this appearance of the retina with amaurosis, you may know it is cancer, which in the eye is almost always fungus.

In all the cases of this disease which I have operated upon, ten 24 or 25, it has returned. I have operated early before it broke, and late, and it has always returned. I only operate now in these cases as a palliative. I think that those surgeons who have operated for fungus, in which there has been no return, have been mistaken in the disease.

Removal of the Eye. When we know the disease is confined to the ball, we hold the lids apart and press upon the inner canthus of the eye. I then thrust a bistoury along the inner canthus back into the orbit, by which I cut off all the attachments of the eye ball, except the internal oblique muscle. When this is done the eye comes out at once.

It is a great improvement in this operation over the other, which requires that the eye should be dissected out.

Lecture 74th February 23rd 1843

Artificial Pupil. This is one of the most interesting and curious subjects in Surgery, and one upon which much has been written. Many kinds of operation for making an artificial pupil have been performed, but it is not necessary to have so great a number of forms. They may however be divided into 3 forms.

The first is the most neat and simple and is called Mooren's Operation. It consists in making a puncture through the Cornea, very near to the iris, with a cornea-knife or lancet which is to be held very nearly parallel with the iris. We then insert a hook inclined laterally, through the small puncture in the Cornea, seize a small portion of the iris and draw it out through the opening without catching the hook against the Cornea. We pull out a portion of the iris like a small button or pins head, and then let an assistant cut it off if he be expert, with a scissors. I generally prefer to cut it off myself, using the spring scissors.

This operation consists, not in making an artificial pupil, but in enlarging the pupil.

It has been improved by Mr Gibson. He made an incision in the Cornea, and prefered out the aqueous humour; at the same time the iris protruded through the incision, ~~and~~ he cut it off.

When the pupils is adherents, this operation cannot be performed as the iris will not protrude, and it requires a large incision through the Cornea.

The German Surgeons have performed it by making an opening through the Cornea through which they drew the iris; but instead of cutting it off they left it to contract adhesions to the Cornea. In this ~~there~~ is more irritation created than in (that of the other Morneus) operation.

I prefer Morneus, i.e. the first, operation to the either of the others. In performing it there is only one danger which is that of hooking the anterior capsule of the lens in seizing the iris by (from) which we may frequently produce opacity. This may be avoided by passing the hook in parallel with the iris and seizing it carefully.

This operation is applied to all cases in which

the pupil is natural, and the cornea has an opacity which leaves the pupil imperfectly visible. In all cases in which the one eye is good, so as to enable the patient to follow his occupations, and there is opacity of the cornea in the one eye only, I leave this alone. But when (the opacity) this operation is required, this one (cases) is (they) least.

If the opacity be in the centre of the cornea, so as to obstruct vision, you ought to make the puncture at the inner canthus of the eye, and cut out a piece of the iris at its inner and lower margins. The puncture here, an account of the nose, is more difficult but by it we favour the natural inclination of the eye.

If the opacity be over this point — the inner point — you must select the inferior part of the cornea, as you have here the largest clear portion of it. If it be made at the upper part of the iris, the patient cannot see unless he raise up the upper eyelid with his fingers.

The puncture made through the cornea heals

by the adhesive inflammation and leaves no opacity. It is the best operation in all cases for artificial pupil for opacity of the cornea.

In some cases we have the pupil closed. This may be owing to opthalmia & sometimes we have cases of congenital closure, there being no pupil at birth.

In all cases in which there is no opacity of the cornea, and have closure of the pupil, Cheseldens Operation is the proper one. In this we take a small needle like a scalpel, which we insert through the sclerotica a little behind the iris, and on through the iris, in which by a little sawing motion we make an incision. In some cases when the incision is made in the iris, by the contraction of the radiated fibres of this body, we have the lips drawn apart, and an opening left like a cats eye pupil.

This is an operation which requires skill in it, the operation for cataract. In performing it we always wound the capsule of the lens, so that the lens

must be destroyed. It is on this account a compound operation - for pupil and Cataract.

The difficulty in this operation is, that when inflamation closes the pupil, the edges will not separate when the incision is made in the iris, but will remain in contact and unite again.

The way I do in this case is to make a cut in the iris and wait a few days until the inflamation has subsided, after which I perform Mooren's operation - that of drawing the iris through the Cornea and cutting off a portion.

The last of the 3 operations is that of Iridesis, which consists in making a lateral pupil in Cases of opacity.

A long needle was introduced into the eye behind the iris, a fold of which was seized and torn away from the ciliary ligaments, thus leaving a lateral pupil.

When there is great opacity, this operation is applicable, but with it there is sometimes a diffi-

culty from the iris floating back again to its place where it obstructs the light.

When this is the case I pull down the portion of iris by Morness operation and cut it off.

Cataract. The operation for cataract is performed in a great variety of ways, (~~so as to render~~ owed) in the eye of some surgeons, one of the most interesting subjects in surgery.

Some advise the operation of extraction of the cataract only.

In this you cut across a little more than ½ of the circumference of the cornea, introduce a curved needle and tear the capsule of the lens and allow it to escape.

The opening in the cornea which should be made obliquely to prevent the lids from catching in it when they are closed, is divided into 2 (~~classes~~ stages) punctuation and incision. You pass the cornea knife through the cornea of one side and on through that of the opposite, in pushing it through which the incision is made outwards and a little more than ½ of the circumference of the cornea divided. When this is done I

proper passing a knife around so as to cut out a circular portion of the capsule of the lens, when the lens can be easily drawn out.

The incision in the cornea heals by the first intention and not by the adhesive inflamation, and the humours are secreted in a few hours. There is no inflamation excited, and the patient by the use of glasses may have the sight restored so as to be as good as when young.

It is the most simple and perfect operation in surgery, but it is difficult (on account of) the motions of the patients head while operating, and the danger of spilling the humours. I have almost abandoned it now however from the great difficulty of getting knives in as good order as to cut the cornea without sawing. I have never had but one sett of instruments fit for this operation, which I had sent from England. Since that have been sharpened they always run from the line edge in them, more or less.

The operation of extraction is confined to hard cataracts, which if left in the eye will excite inflamation

Lecture 75th February 24th 1813

The Organized lenticular Cataracts are the only ones requiring the operation of extraction, the lens being in this kind harder than natural; sometimes like the Cartilage of the nails and sometimes even ossified.

Before extraction we ought to be certain that there is sufficient integrity in the coats of the eye for the Cataract to remain after we have finished the incision. If not the parts after the operation will collapse, the pupil will be disturbed, the incision in the Cornea will not unite and it will become opaque, and the eye may suppurate.

It by far the majority of cases the Cataract is not hard, but all there are which will not yield to the needle but move about when it is introduced.

The needle operation is simple and can be performed by all of you; the difficulty lies in knowing the species and then applying the operation.

In all young persons, and those of middle age the Cataract is almost invariably soft, the only difference being, that it is opaque instead of transparent.

In Children born with Cataract – Congenital Cataract – the lens, filling its Capsule, is softer than natural. Its form is always connected with a scrofulous habit. The lens is in a soft pulpy state (from which it) is called Disorganized lenticular Cataract.

This is distinguished from the organized lenticular Cataract, in being whiter than natural while the other is darker, being of a yellowish, dusky and sometimes of a brown hue. If you look in old persons with the organized, you will see small lines in the cataract which present a cracked appearance, and also an anterior Convexity.

Whenever you see in old persons cataract with a fringed appearance, and with a Colour darker than natural you may be sure it is hard Cataract.

In Children when of a milky Colour, pearly or lamella, you may be sure it is a soft Cataract.

In middle aged persons it generally results from an inflamatory Engorgement, being also most frequently in Cooks, workmen in blasting furnaces; it is also brought on by intense light such as is reflected from

sand. The vessels become distended and finally the lens becomes opaque. It is neither firmer nor softer than the lens in a healthy state.

There are therefore 3 kinds of lenticular cataract: the soft in young persons, and in persons of middle age and the hard in very old people. They all present an opacity in the situation of the lens.

The lamellar capsular cataract sometimes separate but more frequently in combination with this. The deep opacity. Glaucoma - is not available by an operation, neither opacity of the posterior capsule of the lens, as these are all supplied by the arteria centralis retinæ in these we can only do good by general treatment.

The operation is confined to lenticular cataract, and to opacity of the anterior capsule of the lens. You know this by the mottled, streaked or clouded appearance, and by its being anterior. There is another symptom by which to distinguish them. The lenticular begins in the centre and runs out to the circumference (in the capsular) persons see better on cloudy than on clear days. In capsular cataract it is never com-

fined to the centre (there is only a central speck.)

They originate from a great many causes. The parts are irritated, lymph is thrown out and becomes organized. If there be no advance towards a cure after 2 or 3 years, it may be necessary to operate.

There is another form of cataract which arises from wounds of the eye. Splinters of wood, and other bodies penetrate the capsule of the lens which becomes opaque: the opacity in this case is greatest where the wound is made.

If only 1 eye be affected, I would advise you to let it alone. If lacerated, and you know the other eye will be affected, you may operate. If we operate the eye cannot keep in harmony with the other and if the patient want, to see he must close one eye. The rule is, to refuse to operate when the one eye is sound.

Needle Operation. A great many needles have been used for this operation; curved, slender, blunt and pointed, large and small. There can be no doubt the smaller the instrument the better; and there are only 2

required, I curved and one straight, with cutting edges behinds the point. In by far the majority of cases the curved needle is the best.

Operation. We always introduce the needle into the eye 1½ or 2 lines behind the cornea, so as to avoid the ciliary bodies and ligaments. The ciliary bodies are vascular and sensible; if we touch them we should have pain and an effusion of blood into the eye. I generally carry the needle 2 lines behind the cornea. You must introduce the needle a little below the central line, so as to avoid the ciliary arteries and nerves which run along this line. It should be introduced about 1 line below the central line. It also gives additional advantage of commanding the cataract in depressing. We introduce the needle with the concave surface posterior, and the convex anterior. You then carry it in front of the lens and near the upper margin of the pupil. You then move it from side to side and rotate it a little so as to cut a hole in the anterior capsule. You must always operate with a view of making a central hole in the anterior capsule. Do not make the hole too

large a there will be a fringe obstructing the light. You must break down and destroy a central aperture.

If there be nothing but Membranous Cataract. You have now destroyed it. If Lenticular, you advance into the lens, pull out and down until you cut it all down. If it be soft you have the pulp discharged, some going into the anterior chamber and some into the posterior chamber of the eye.

(When we have Milky Cataract, it will be confirmed by this running out, but I do not stop on this account.)

This is the operation:- making a hole in the anterior capsule of the lens, and breaking down the lens in the capsule. If the Cataract is soft, I allow it by gravity to fall down into the anterior and posterior chambers. In other cases where I have broken it down and made it as small as I can, after cutting away the anterior capsule, I then depress it down behind the iris. A small lens will be absorbed in a few months, but a hard lens will require a few years.

In all cases it should be put down just be-

low the pupil, behind the iris, and not pressed back into the vitreous humour. Immediately behind the iris and below the pupil is the only place where hard cataracts can be placed so as not to create irritation.

When the operation has been finished, keep the patient in a dark room, and apply, twice a day, the Belladona or strammonium by which the pupil will be kept large. Avoid too active depletion or you not only render the patient weak and irritable, but (you render) the eye irritable and liable to subsequent inflammation. Now I never deplete and starve only when the patient is strong and plethoric; and when above par I only bring them down to par.

If the patient be of a feeble, nervous and irritable temperament, I put them on tonics and stimuli. Instead of salts, I give brandy toddy, which is the best way to prevent inflamation.

Sometimes it happens there will be irritation, and pain and nausea, and if not overcome there will be inflamation.

I then apply sinapisms to the epigastrium

and bottles of hot water to the feet. If nausea continue give warm water or so as to promote vomiting, and then give an anodyne. I apply a large warm poultice moistened with laudanum, covering not only the eye, but forehead, temples and cheek bones, every hour or two. By the time the patient gets asleep the irritation will be overcome.

If there be plethora and the eye be engorged with blood, I would bleed and purge.

In some cases the vessels enlarge and produce a gritty sensation. I then introduce some mild mucilage of Sassafras, or Quinseed or Elm bark or flaxseed, dropping a few drops between the lids or what is better the white of a fresh egg. I prefer little light, as the eye is made susceptible of irritation.

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Neuralgia is a name given at the present day to almost every kind of pain, even to that of pleurisy and rheumatism: but strictly speaking, it is a severe pain shooting along the track of a sensitive nerve; in those cases in which the pain shoots transversely in regard to the track of the sensitive nerves in the direction in which it is felt, and follows the course of none of them, it is not properly a neuralgic pain. The shooting pain frequently met with in the joints and other parts in rheumatic patients, which shoots transversely in respect to the nerves in those parts is not a neuralgic pain. The name ought to be confined to a morbid affection of the sensitive nerves, along the course of which there is a distressing, shooting pain: — sometimes, however a universal pain is met with, in which case it may be called a general neuralgia.

Of the nature of the morbid affection of the

sensitive nerve which is the subject of neuralgia, there has been much discussion. Some writers attribute it to ~~an~~ inflammatory action in the neurilema — others to exaltation of the nervous sensibility independent of any organic disease which we may detect in the nerve. Sir Charles Bell who paid particular attention to this subject, and was unable to detect any organic change in nerves affected with neuralgia, was led from the results of treatment directed to the abdominal viscera, to place its seat in the majority of cases in these. But from the nature of the affection, the results of antiphlogistic treatment, and the changes found on dissection, we are led to conclude that in some cases, if not in a great many the affection is inflammatory. In the neuralgia connected with rheumatism, in which the pain is characteristic of neuralgia in shooting along the tracks of the sensitive nerves in the part, we have an example of a case which is undoubtedly inflammatory. If the treatment directed for rheumatism, such as the use of cups, leeches,

and liniments be carried out, until we have overcome the rheumatic inflammation; we find we have overcome the neuralgia, and the patient remains free of neuralgia as long as there is no rheumatism; but if there should be a return of the rheumatism, there will be a return of the neuralgia, showing that in these cases the neuralgia exists only with the rheumatism which is inflammatory, and that it is owing to inflammatory action in the neurilema. In other cases not in connection with rheumatism, there is evidence of inflamation, such as tenderness or pain to pressure of the parts to which the nerve is distributed. In inflammation of the spinal-chord — the root of the peripheral nerves — there is morbid sensitiveness and sometimes actual pain in the parts to which these nerves are distributed, however remote from the spinal chord. As in inflammation of the spinal chord, so is it in neuralgia; — the parts to which the nerve the subject of neuralgia are distributed, are painful to pressure. There is

additional evidence of the dependance of some cases upon inflammation, in the results of antiphlogistic treatment. Many cases have been cured by cupping, leeching and blistering, with a well regulated diet. Still further evidence has been exhibited by dissection, such as injection, thickening and effusion of the neurilema.

Whether the disease be inflammatory, and local or general, it must be examined, with regard to the condition of the system. All kinds of constitutional disturbance and derangement of the viscera, in the prosecution of treatment, must be first removed, as by this means in many cases - particularly those not inflammatory - a cure may be effected.

Rheumatism is frequently a cause of neuralgia. There is a low degree of inflammation of the adhesive kinds and thickening of the neurilema. The parts are tender to pressure, and in addition to the usual pain of rheumatism, there is that of a lancinating character confined to

the tract of the nerves, and indicative of neuralgia. When this condition obtains in the muscular nerves, there is a stiffness and rigidity of the muscles, and loss of the power of motion in the part.

In these cases by overcoming the rheumatic inflamation, we generally overcome the neuralgia. The part should be kept warm, and action should be excited in the Skin. Granvill's mixture, composed of strong Aq ammonia, Tinct. of Camphor and Oil of Rosemary in various proportions may be rubbed over the part. The aqua ammonia is the active agent in the mixture, but it is too strong when applied pure. The Camphor and Rosemary are added to dilute it. The part should be covered with flannel, which may be moistened with the mixture. Rubbing should be carefully avoided as it gives rise to severe pain. It may be applied 3 or 4 times a day, and rubbed in by means of a roller. When the part becomes red, there is a sufficient degree of irritation. Castor Oil or Sodine may also be used to

partial redness of the skin. If these remedies do not succeed, the part should be cupped and leached or blistered, when if the pain is not relieved, the raw surface may be dressed moistened with a solution of Morphia. — this sometimes gives relief. If any unusual pulsations exist in these cases it must be subdued by proper general depletion.

Some cases of neuralgia arise with a torpid state of the bowels, and obstructions in or a deficiency of the hepatic secretions — the countenance is sallow — the tongue is furred, and there is loss of appetite.

In these cases the disorder must be corrected by mercurial alterative combined with cathartics, with bathing and friction on the skin by means of a flesh-brush or coarse towels, and with active out-door exercise when the weather is favorable.

Some cases are connected with a deficient or depraved action of the skin, as evinced by dryness or by eruptions - often herpetic, and evidently as a

causes of the neuralgia. These disorders sometimes affect the eyes, the olfactory nerves, the affections which they give rise to, not being confined to the nerves of common sense.

When arising from these causes the condition of the stem must be corrected by proper attention to cleanliness, by the use of active diaphoretic medicines - such as calumba in combination with decoction of Sarsaparilla, Sassafras or some other woods or shrubs, and by warm bathing or the use of vapour baths, warm clothing and proper exercise.

Many cases there can be no doubt, depend on marsh emanations. Whether it be owing to effluvia, the fermentation of vegetables, or magnetic phenomena, to each of which the diseases near marshes have been attributed, we do not know; - most likely, however to magnetic phenomena, as the chemist by means of his eudiometer is unable to detect the slightest difference between marsh and other air. When arising from these causes, which are the same that give rise to intermittents, the neuralgia of

sumes an intermittent character, the attacks coming on every day, or on alternate days - generally in the morning, continuing throughout the day, then leaving the patient free from evening until the next morning.

When the paroxysm is complete, the patient being left quite free of pain during the intermission - which is generally during the night, the Quinine should be given, and in very large doses. In intermittents from 50 to 60 grains - in the severe cases from 15 to 30 grains may be given during the intermission. If these fail of attending these remedies the tonics may be given: - Sulphate of Zinc, Sulphate of Copper & carbonate of Iron, may all be useful in particular forms of this disease. Intermittent fevers which cannot be cured by other remedies often yield to the sulphate of Copper.

Sometimes Neuralgia occurs in a low prostrate, and almost bloodless condition of the system, in which the tongue, skin, lips and nostrils are pale, and the constitution weakly. There is a state of

the system presented, like that after profuse discharges by diarrhea or hemorrhage in which the patient is said to be anemic. There is not only a deficiency of blood in the vessels but there is a small amount of red globules compared with the serum- the serum is said to predominate over the red particles. The system is also in an irritable state, the nerves having gained a predominance of the blood vessels. Patients suffering from neuralgia, and presenting this state of things, are in a truly distressing state.

In these cases tonics may be given, but stimulants though seemingly called for are injurious. The Carbonate of Iron last works wonders. It has been given as a specific for neuralgia. It is not useful on account of any specific virtue that it may possess, but on account of its applicability to the particular condition of the system presented above. Neither is it the Carbonate of Iron only, that is useful in these cases - any of the salts of iron may be given. They act by yielding oxygen to and increasing the red particles of the blood. The Car-

bonate of iron may be given in 10 or 20 gr. doses 3 times a day; at the same time the patient should be allowed digestible and nourishing food, and take out door exercise. When irritability exists after we have corrected the deranged state of the system, and there remains no arterial excitement, the narcotics should be given.

When the patient is dyspeptic, a change of diet, air, and exercise should be made; the diet must be nourishing and digestible, and the air pure. If the patient lives in town a change must be made to the country — if in the country, a change may be recommended to the country; — at the same time the skin must be kept open by proper clothing and the bowels regular.

In neuralgia by removing all derangements that exist in the system, a cure can be effected in a great majority of cases. It is only when the cause is located and confined to the nerve itself, that neuralgia proves obstinate. Of the local causes, inflammatory action in the nerve itself, the growth of tumours and and so-

ration of the fibres, or of an exostosis and pressure upon the nerve may be enumerated. These are subjects of surgical treatment. When, after having corrected all disorders of the system concomitant with neuralgia, we fail of effecting a cure, the patient should be taken through a regular alterative course. The common, and perhaps best remedy for this purpose is Fowler's Solution, which may be given in doses of 6 or 8 drops 3 times a day: or of the Arsenious Acid ½ to ¼ of a grain 3 times a day. At the same time the diet must be regulated and demulcent drinks must be given. The arsenic corrects the condition of the skin and removes obstructions in the viscera better than any other remedy. In severe cases, where smaller doses fail of producing any impression, 20 or 30 drops may be given 3 or 4 times a day. When this remedy does not succeed, or at the time of its exhibition, Veratria may be applied to a blistered surface near the seat of pain. I cannot speak as favorably of Veratria

as many have done. I have seen it applied in this way, and although for a long time but little benefit was derived. It has been strongly recommended, and may be found more successful in other Lands. It is admitted to be more successful in neuralgia of the extremities, than in that of the trigeminus. Should these means fail, concomitant with the veratria, a slight mercurial impression may be made and kept up for a few weeks.

When the disease has resisted all these remedies — all disorders having been removed and an alterative course gone through with — we shall most likely never be able to effect a cure by therapeutic agents. There is then no doubt pressure upon the nerve by some foreign body, or injection and thickening of the neurilema. Then an operation is required. This operation has been opposed by many, but it has received the support of all intelligent surgeons. It must not be performed indiscriminately. All cases that have resisted therapeutic

remedies are not fit subjects for it; and I think that it is on account of the abuse of the operation that it has been opposed. A point between the seat of irritation and the brain must be within reach of the knife, and the pain must be confined to one nerve. If the pain move about from one place to another, and from one side to another, an operation is not admissible, for it then arises from a central source of irritation which is the brain or spinal marrow. In order that benefit may be received, the nerve must be divided between the seat of irritation and the root. If the source of irritation is out of reach of the knife, an operation is out of the question. If for instance, from ossification of the dura mater, a spicule of bone should press upon the 5th pair of nerves, within the cranium, the pain would not be confined to any one filament of that nerve, but would shoot about from one place to another, and probably from one side to the side. Then patients will con-

pleura of pain, one day in the jaw and the next in the forehead. They are incurable by operation, because the point between the seat of irritation and the root is not within reach of the Knife, the seat of irritation being within the Cranium.

When the pain moves about from one place to another and from one side to the other the source of irritation may be at the root of the nerve affected, or it may be in the brain or spinal marrow. If at the root of the nerve, the sensitive or the muscular filaments may alone be affected; if within the cranium or spinal column and from disease of the brain or spinal marrow, both muscular and sensitive filaments will be affected. There may be exceptions to this in the case of the spinal marrow when but the anterior or posterior columns alone are diseased. if the anterior columns be diseased, sensation will alone be changed - if in the posterior columns, muscular motion will alone be impaired. If the disease be of an inflammatory character and involving both efferent and afferent filaments, there will be pain only & pain but muscular rigidity of the limb or jaw. I have

seen the fingers fixed in the palm of the hand. The hand is sometimes fixed at the shoulder and the leg on the back of the thigh; at other times there are alternate flexion and contractions of the limbs. If the cause be seated in the Spinal Column, there will frequently exist a general neuralgia, and if pressure be made over the spinous processes, the patient will show signs of pain at one, two, sometimes several places. Day after day, if as often as pressure is made, pain will be complained of at these particular places.

When the cause is seated in the Spinal column and there is tenderness to pressure, irritation must be created in the skin over the tender spot. Blisters may be applied in succession, or the Tart. of Antimony Ointment or Croton Oil may be rubbed in and to discharge. Kept up for 3 or 4 weeks. If the irritation arise from the lead, cups may be applied to it, or the pustules may be brought out by the ointment over the back of the neck.

Neuralgia of the Supra Orbital Nerve. This nerve is a branch of the Orbital nerve of the Trigeminus. It comes

out above the eye through the supra-orbitary foramen, and runs backwards over the forehead. When the subject of neuralgia, the pain shoots over the eye and backwards over the forehead and head. It is sometimes combined with hemicrania, described by the patient as a cold spot upon some part of the head. I saw a case in which the pain shot back over the forehead to the cold spot. Some describe the hemicrania as a flame applied to the part — some as a nail driven through the integument — some like a rasping and some as a vice like pressure upon the part. The pain that an operation upon this nerve may be successful, after therapeutic remedies have failed, must be confined to parts over the eye, and to one side of the head. When confined to these, however much debilitated and undermined the constitution may be, the operation will be successful.

The subcutaneous method of operating is the one which I think is preferable. It takes less time, is easier of performance, and leaves a smaller scar than that in which the nerve is exposed before it is divided, and

is quite as successful. Experience has proved that it is not necessary to remove a portion of the nerve. The complete division of it by the subcutaneous method, in which blood is effused between the cut ends, always succeeds. The artery may be divided at the same time without trouble from hemorrhage, by which the supply of blood will also be cut off. A sharp pointed bistoury should be used. Holding it obliquely over the nerve it must be pushed through the surface and down upon the bone, over which, under the skin and above the course of the nerve it is carried until division is effected. The blood pours out from the divided vessels, and coagulates between the ends of the nerve. The pain immediately ceases, and the parts are numbed. This is always the case when neuralgia is confined to the scalp, and division of the nerve is made between the seat of irritation and its root.

Neuralgia of the Infra Orbital Nerve. The Infra Orbital Nerve, which is thought to be most frequently the seat of neuralgia, is the continuation of the second branch of the Trigeminus. This branch after having supplied

the teeth and other parts of the upper jaw, comes out through the infra orbital foramen, and distributes itself upon the parts about the upper lip and side of the nose. When this nerve is the seat of neuralgia, there is a sharp, biting, and shooting pain in its situation, very different from pains in the teeth. The pain must be confined to the upper lip and side of the nose to justify an operation upon the nerve.

It must be severed immediately after it has emerged from the infra orbital foramen: to cut the external or internal branch alone will not be sufficient. It may be cut in the same way as the supra-orbital — by the subcutaneous method. The lip should be raised and a bistoury passed under it, then over the first bicuspid tooth through the soft parts and across the course of the nerve. It may be drawn across 3 or four times to insure success. The artery is cut, will retract and contract, and by slight pressure the hemorrhage can always be arrested.

Frequently the seat of neuralgia is found to exist in the <u>fifth branch</u>, or the one that supplies

the teeth of the upper jaw. Inflammation of the periosteum or substance of the bone or teeth may be the cause. The pain is irregular, sometimes shooting to the eye — sometimes to the back of the head — sometimes to the base of the skull.

The teeth and cavities must be examined. The teeth must be struck separately with a hard body — as a key or knife. General may be carious and only one the cause of neuralgia. Carious teeth are not more sensitive when struck than sound ones. When ~~started~~ in a tooth a paroxysm will be brought on by striking the tooth, even when not in the side of the neuralgia. I have seen several cases of this kind. Some surgeons say that all the diseased teeth must be removed but I do not think this necessary. Sound teeth as far as we are able to judge by an examination, may be the cause where decayed teeth exist. The cause may be in the dens sapientiæ, which is sometimes diseased before it protrudes, when a paroxysm will be brought on by pressure over it. Enlargement

of the nut of the tooth, or thickening or elongation of the body of no doubt the result of chronic inflamation - creating irritation which extends to the nerve, is ~~no doubt~~ a frequent cause: exostosis or caries may also be causes.

When inflamation or thickening exists, it must be removed by the use of cups or leeches and a well regulated diet. When a carious or necrosed state of the bone exists, that portion must be removed and a small quantity of some narcotic introduced, to deaden the sensibility of the nerve. This may be done by staining the narcotic — morphia is the best — upon a camels-hair pencil. The bone should then be allowed to suppurate, granulate and heal. When the cause is seated in a tooth, it must be extracted. Great care is requisite in ascertaining the diseased tooth. If in the dens sapientiæ, before it has protruded through the gum, this tooth must be cut down upon and removed. The operation is a very painful one, but generally successful. No operation can be performed upon the portion or branch of the maxillary nerve, excepting it be cutting out portions of the bone for cases

or contusion. The branch cannot be reached by the knife.

Neuralgia of the Inferior Maxillary Nerve is one term which holds in which the pain is confined to and the cause located in the jaw. I have seen several cases of this kind. More frequently however the cause will be found at the root of the difficulties, and the pain one day in the lower jaw - another in the upper - one day on one side and the next on the other.

When the pain is confined to the lower jaw and to one side, after having removed diseased teeth and failed with therapeutical remedies, operation may be performed. The nerve may be severed after the removal of a portion of the jaw bone with the trephine opposite the mandibular foramen, or more easily and quite as successfully from within the mouth. After having introduced the index finger into the mouth and placed the point upon the ramus of the jaw, a bistoury may be carried along on it and a cut made upwards and downwards across the direction of the nerve. Hemorrhage